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**DETERMINANTS OF THE MODE OF OFFSHORING OF SERVICES BY
LARGE US CORPORATIONS: ROLE OF SERVICE
CHARACTERISTICS, FIRM CAPABILITIES, STRATEGIC MOTIVES,
AND CONCERNS**

By Anand Pore

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and approved by

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ABSTRACT

This study explores the effects of service characteristics, firm capabilities, strategic motives and concerns on mode of offshoring of services of large US corporations. Firms could offshore services through a wide spectrum of modes ranging from i) complete internalization (foreign subsidiary), to ii) complete externalization (arms length transactions), or iii) intermediate modes (such as licensing, joint venture etc).

Although, factors such as cost savings, time savings, host country incentives, access to skilled resources and markets may motivate firms to engage in offshoring of services; concerns regarding security/privacy of data, intellectual property rights, host country political/economic uncertainty, cultural distance between the host country and the home country and lack of partners/vendors in the host country may discourage firms from either offshoring services completely or may limit the choice of offshoring modes available to the firm in the host country.

Also, factors related to the service such as strategic importance of the service to the firm, customization needs of the customer and use of proprietary technology in the production/performance of the service and firm capabilities may play a part in deciding the mode of offshoring.

All these factors related to the service characteristics, firm capabilities, motives and concerns are used to build a model to explain the modal choice of offshoring of services of large US corporations. Survey data, regarding the above mentioned factors for firms involved in offshoring of services, was collected to empirically test the model.

The model was tested using multinomial, binomial and ordinal regression. Results of the study support the influence of the strategic importance of the service, proprietary technology and cost savings motive on the mode of offshoring. In addition, firm's concerns regarding security/privacy of data, host country political/economic uncertainty, and lack of partners/vendors in the host country were also found to influence the offshoring mode. But, firm's motives of time savings, accessing host country skills and market and taking advantage of host country incentives were not found to influence the offshoring mode. Moreover, firm capabilities and firm's concerns over intellectual property protection and cultural distance were also not found to influence the mode of offshoring.

DEDICATION

To my Father, Madhav K. Pore (1940 – 2007)

I really miss you! I wish you were here to celebrate this accomplishment in my life.

My father was born in Mardi (a very small village in Maharashtra, India). He was very interested in learning new things, but there was not even a primary school (elementary school) in Mardi. He completed his primary education (up to 4th grade) in a nearby village. For the next stage of education, the nearest school (5th grade through 8th grade) was about 10 kms (6.21 miles) away, but this did not deter him. He would walk / hitch-hike (mostly walk) to the school. His father was a farmer and did not support his quest for knowledge and hence he had no choice but to run away from home to pursue further education. He went through great hardship to get his high school diploma. The primary motivation for him to pursue education was that as a young boy, while working in the field he saw an airplane fly overhead and decided that one day he would travel in an airplane. He fulfilled his dream by joining Indian Air Force.

Over the years he helped many young kids realize their educational goals by helping them in every possible way.

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TABLE OF CONTENTS

Abstract	ii
Dedication	iv
Acknowledgements.....	v
List of Tables	xiii
List of Figures	xv
List of Abbreviations	xvi
Chapter One: Research Overview	1
1.1 Purpose of the study	1
1.2 Basic Concepts	1
1.2.1 Offshoring	1
1.2.2 Mode of offshoring	2
1.2.3 Factors affecting mode of offshoring	2
1.2.4 Large US corporations	4
1.3 Research motivation	4
1.4 Scope of the study and Unit of analysis	8
1.5 Data collection and methodology	9
1.6 Contributions of the study	10
1.6.1 Academic contributions	10
a) Doing different things	10
b) Doing things differently	11
1.6.2 Managerial implications	11
1.7 Organization of the study	12
Chapter Two: Literature Review	13
2.1 Literature on mode of offshoring of services	13

2.1.1	Literature on mode of offshoring of services in IB and Management field	14
2.1.2	Literature on mode of offshoring in Management Information Systems (MIS) field	15
2.1.3	Literature on mode of entry in IB and Management field	16
2.1.4	Theories used to explain mode of entry in IB and management field	19
2.2	IB and Management theories and their ability to explain/ predict /support various offshoring modes	19
2.2.1	Transaction cost Analysis (TCA)	20
	a) TCA limitations	23
	b) Applicability of TCA to predict mode of offshoring of services	24
2.2.2	Resource Based View (RBV)	25
	a) RBV limitations	27
	b) Applicability of RBV to predict mode of offshoring of services	28
2.3	Framework	28
2.4	Summary	30
Chapter Three: Conceptual Framework		31
3.1	Introduction	31
3.2	Variables and hypothesis development	33
3.2.1	Dependent variable - Mode of Offshoring	33
3.2.2	Independent Variables	36
3.2.2.1	Capabilities	36
	a) Firm size	36
3.2.2.2	Characteristics	37
	a) Strategic Importance of the Offshored Service	38
	b) Customization	40
	c) Proprietary Technology	41
3.2.2.3	Causes (Motives)	43
	a) Cost Reduction	45
	b) Reduce Time	46
	c) Access Skills	47
	d) Access Market	48
	e) Host Country Incentives	50
3.2.2.4	Concerns	50
	a) Data Security/ Privacy concerns	51
	b) Intellectual Property Protection	52

	c) Host Country Risk	53
	d) Cultural Distance	54
	e) Lack of reliable partners/ vendors	56
3.3	Summary	57
 Chapter Four: Research Methodology		60
4.1	Introduction	60
4.2	Research Design	60
	4.2.1 Unit of Analysis	61
	4.2.2 Sample	62
4.3	Operational Measures	63
	4.3.1 Background	63
	4.3.2 Low survey response rate	64
	4.3.3 Single-item measures vs. multi-item measures	65
	4.3.4 Why are multiple item measures preferred over single-item measures?	69
	4.3.5 When are single-item measures appropriate?	71
4.4	Survey Instrument Development	72
	4.4.1 Operationalization of variables	73
	4.4.1.2 Dependent Variable - Mode of Offshoring	73
	4.4.1.3 Independent Variables	76
	4.4.1.3.1 Capabilities	76
	a) Firm size	76
	4.4.1.3.2 Characteristics	78
	a) Strategic Importance of the Offshored Service	78
	b) Customization	81
	c) Proprietary Technology	81
	4.4.1.3.3 Causes (Motives)	83
	a) Cost Reduction	83
	b) Reduce Time	85
	c) Access Skills	85
	d) Access Market	85
	e) Host Country Incentives	86
	4.4.1.3.4 Concerns	86
	a) Data Security/ Privacy concerns	87
	b) Intellectual Property Protection	89
	c) Host Country Risk	89
	d) Cultural Distance	90

	e) Lack of reliable partners/ vendors	91
4.5	Data Collection	91
	4.5.1 Survey Instrument	91
	4.5.2 Pilot test	93
	4.5.3 Conducting the survey	93
4.6	Summary	94
Chapter Five: Data Analysis and Results		95
5.1	Survey Response	95
5.2	Psychometric Concerns	96
	5.2.1 Non-response bias	96
	5.2.2 Methods bias	97
	5.2.3 Unidimensionality	97
	5.2.4 Validity	97
	5.2.5 Reliability	98
	5.2.6 Multicollinearity	101
	a) Variance Inflation Factor (VIF)	101
	b) Correlation matrix	103
	c) Multicollinearity and Interaction terms	104
	d) Solutions for reducing / eliminating multicollinearity	107
5.3	Descriptive Statistics	110
	5.3.1 Missing data	110
	5.3.2 Data formatting	110
	5.3.3 Skewed data	111
5.4	Model Analysis	113
	5.4.1 Regression methods	114
	5.4.2 Full model	115
	5.4.3 Reduced model	120
	5.4.4 Analysis of various models	121
5.5	Hypothesis Testing	122
	5.5.1 Capabilities	122
	a) Firm size	122
	5.5.2 Characteristics	125
	a) Strategic Importance of the Offshored Service	125
	b) Customization	126
	c) Proprietary Technology	129
	5.5.3 Causes (Motives)	131
	a) Cost Reduction	131

	b)	Reduce Time	132
	c)	Access Skills	133
	d)	Access Market	135
	e)	Host Country Incentives	136
5.5.4		Concerns	138
	a)	Data Security/ Privacy concerns	138
	b)	Intellectual Property Protection	139
	c)	Host Country Risk	140
	d)	Cultural Distance	142
	e)	Lack of reliable partners/ vendors	143
5.6		Summary	145
 Chapter Six: Discussion and Conclusion			149
6.1		Discussion of Findings	150
	6.1.1	Capabilities	150
		a) Firm size	150
	6.1.2	Characteristics	151
		a) Strategic Importance of the Offshored Service	151
		b) Customization	151
		c) Proprietary Technology	152
	6.1.3	Causes (Motives)	154
		a) Cost Reduction	154
		b) Reduce Time	154
		c) Access Skills	155
		d) Access Market	155
		e) Host Country Incentives	156
	6.1.4	Concerns	157
		a) Data Security/ Privacy concerns	157
		b) Intellectual Property Protection	157
		c) Host Country Risk	158
		d) Cultural Distance	159
		e) Lack of reliable partners/ vendors	160
6.2		Contributions of the Study	160
	6.2.1	Academic contributions	160
	6.2.2	Managerial implications	161
6.3		Limitations of the Study	164
6.4		Directions for Future Research	165

References	167
Appendices	188
Appendix A - Sample Email, Cover letter and Online Survey	189
Appendix B - Respondent Profile	200
Vita	211

LIST OF TABLES

Table #	Description	Page #
3.1	Difference between various offshoring modes	35
3.2	Summary of Hypotheses	57
4.1	Variable descriptions and related survey question - Dependent Variables	75
4.2	Variable descriptions and related survey question - Independent Variable Firm Size	77
4.3	Variable descriptions and related survey question - Independent Variables related to Service Characteristics	80
4.4	Variable descriptions and related survey question - Independent Variables related to Causes (Motives)	84
4.5	Variable descriptions and related survey question - Independent Variables related to Concern	88
5.1	Result of test for non-response bias	97
5.2	Calculations for single item reliability	100
5.3	VIF values for independent variables	102
5.4	Spearman's rho correlation coefficients	103
5.5	Spearman's rho correlation coefficients and VIF for variables and their interaction terms	105
5.6	Effect of multicollinearity on coefficients and their significance ...	106
5.7	Spearman's rho correlation coefficients and VIF for variables and their interaction terms after centering	108
5.8	Spearman's rho correlation coefficients and VIF for variables and their interaction terms after Zeta transformation	109
5.9	Spearman's rho correlation coefficients and VIF for higher order terms	109
5.10	Descriptive Statistics	113

5.11	Test of Parallel Lines	115
5.12	Summary of results of multinomial logistic regression (Full model)	117
5.13	Summary of results of binomial regression (Full model)	118
5.14	Summary of results of ordinal regression (Full model)	119
5.15	Summary of results of ordinal regression (Reduced model)	120
5.16	Hypotheses summary for all three methods of regression (including full and reduced models)	123
5.17	Hypotheses summary for all methods of regression	146

LIST OF FIGURES

Fig #	Description	Page #
3.1	4Cs Framework	32
5.1	Offshoring Mode vs. Employees	124
5.2	Offshoring Mode vs. Strategic Importance	126
5.3	Offshoring Mode vs. Customization	127
5.4	Offshoring Mode vs. StratXCust	128
5.5	Offshoring Mode vs. Proprietary Technology	130
5.6	Offshoring Mode vs. StratXProp	131
5.7	Offshoring Mode vs. Reduce Cost	132
5.8	Offshoring Mode vs. Reduce Time	133
5.9	Offshoring Mode vs. Access Skills	134
5.10	Offshoring Mode vs. Access Markets	136
5.11	Offshoring Mode vs. Host Country Incentives	137
5.12	Offshoring Mode vs. Data Security /Privacy	139
5.13	Offshoring Mode vs. Intellectual Property Protection	140
5.14	Offshoring Mode vs. Host Country Uncertainty	141
5.15	Offshoring Mode vs. Cultural Distance	143
5.16	Offshoring Mode vs. Lack of Partner / Vendor	144

LIST OF ABBREVIATIONS

4 Cs - Capabilities, Characteristics, Causes and Concerns

BEA - US Bureau of Economic Analysis

GE - General Electric

IB – International Business

IO - Industrial Organization

IV - Independent Variable

MIS - Management Information Systems

RBV - Resource Based View

SBA - Small Business Administration

SME - Small and Medium Enterprises

TCA - Transaction Cost Analysis

WTO – World Trade Organization

CHAPTER ONE

RESEARCH OVERVIEW

This chapter gives an overview of the research; it discusses the purpose of the study, basic concepts used in this study, research motivation, data collection techniques and research methodology used, scope of the study and contributions of this study.

1.1 PURPOSE OF THE STUDY

Purpose of this study is to develop and test a conceptual framework based primarily on existing International Business (IB) and Management theories and to test the effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services.

Before we go any further it is important to understand the basic concepts used in this study.

1.2 BASIC CONCEPTS

Basic concepts such as offshoring, mode of offshoring, factors affecting mode of offshoring and the term large US Corporation are briefly discussed in this section.

1.2.1 Offshoring

The US Bureau of Economic Analysis (BEA) defines ‘offshoring’ of services as the relocation of production of services from the US to a foreign location. Sourcing, global sourcing and international sourcing are some other terms used to refer to the phenomena of offshoring.

1.2.2 Mode of offshoring

Mode of offshoring is the method by which a firm procures/ produces services from/ in a foreign location. According to Transaction Cost Analysis (TCA), firms could offshore services through a wide spectrum of modes ranging from complete internalization (foreign subsidiary) to complete externalization (arms length transaction) or intermediate modes (licensing, strategic partnership, joint venture etc). TCA is a principal theoretical framework used to explain and predict global sourcing of products (Murray and Kotabe, 1999).

In this study, these various modes of offshoring are classified based on the level of control (Root, 1987) the firm has over the production/ performance of the offshored service. Complete internalization is referred to as 'internal sourcing', intermediate mode as 'cooperative sourcing' and complete externalization as 'external sourcing' in this study. The level of control is high for internal sourcing, low for external sourcing and medium for cooperative sourcing.

In terms of level of ownership, the level of ownership is full (high) for internal sourcing, none (low) for external sourcing and partial (medium) for cooperative sourcing. The terms 'mode of offshoring', 'offshoring mode', 'mode of sourcing' and 'sourcing mode' mean the same thing and are used interchangeably in this study.

1.2.3 Factors affecting mode of offshoring

Although various factors related to the firm, partner / vendor, host country, home country and others factors influence mode of offshoring, this study explores only the

effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services.

Capabilities – Capabilities refers to firm capabilities. According to Resource Based View (RBV), firm's resources and assets provide firm capabilities. Firm's size, international experience, tacit-know, managerial experience, other assets and resources provide firm capabilities that it can strategically deploy in a foreign market. When entering a foreign market, firm capabilities may enable or constrain the choice of offshoring mode.

Characteristics – Characteristics refers to the characteristics of the service that is offshored. Service characteristics, such as strategic importance of the service to the firm, need for customization of the service, proprietary nature and complexity of technology used to produce / perform the service, level of interaction between the firm and the customer and/or between the firm and the vendor and/or between the vendor and the customer and frequency of transactions, may influence the mode of offshoring.

Causes (Motives) – Firm's desire to reduce cost and /or reduce time (efficiency seeking); access skills and /or technology (asset seeking); access markets (market seeking); improve service quality and host country incentives, may also influence offshoring mode selection.

Concerns – Firm's concerns over data security/privacy, intellectual property, host country political or economic uncertainty, cultural difference between host and home country, uncertainty over quality and / or volume of services being produced / performed in the host country, lack of partners/ vendors in host country, potential for opportunistic behavior by partners/ vendors in host country, transaction cost, start up cost, production

cost, loss of control over the overseas operation, home country employee morale and loss of innovative capacity in home country may also influence offshoring mode selection.

1.2.4 Large US corporations

According to Small Business Administration (SBA), US firms with more than five hundred employees are classified as large firms. This study focuses on the offshoring (of services) practices of large US corporations.

1.3 RESEARCH MOTIVATION

According to BEA US import of private services (private services are calculated as total services minus government services and include transport, travel and other private services) increased from \$65 billion in 1986 to \$308 billion in 2006, a phenomenal increase of 375.46% over two decades or an annual average increase of more than 18.7%. Despite this impressive growth in importing of services, it remains relatively (compared to importing of goods) under researched topic. Even more impressive are the numbers for US import of other Private services (“Other private services” consists of education, financial services, insurance services, telecommunications, “business, professional, and technical services,” and “other services”). According to BEA, US import of other Private services increased from \$13 billion in 1986 to \$116.5 billion in 2006, a whopping increase of 786% over two decades or annual average increase of more than 39.3%. According to a report by National Academy of Public Administration (2006), among services, other private services are most suitable for offshoring.

Despite this phenomenal growth, significance and pervasive nature of phenomena of offshoring, only the popular and professional press seems to touch on this phenomenon on a regular basis (Liesch, Knight and Simonin, 2006). Also, the scanty academic research that does exist, is in the area of Information Technology (IT) or operations management (Liesch et al., 2006).

According to Lovelock and Yip (1996a), research in global strategy for service firms is still at an evolutionary stage. Contractor Kundu and Hsu (2003), Ekeledo and Sivakumar (1998) and Ramamurti (2004) have called for new theory development and empirical research. Relatively little attention has been given to Stephen Hymer's externalization of production by corporations (Strange and Newton, 2006). Empirical studies examining global sourcing are scarce, in spite of global economic integration and increased global sourcing (Park, 2000). Liesch, Knight and Simonin (2006) have expressed the need for a new theory of 'externalization', which would complement existing theory of 'internalization' and would be useful in explaining the phenomena of outsourcing and offshoring.

Ramamurti (2004) has stressed the need for research in offshoring of services. Offshoring of services is driven by large wage differential between rich and poor countries; integration of India and China in the world economy; dramatic improvements in the quality and reduction in the cost of computing and communications and emergence of Internet (Ramamurti, 2004). Also, the recent surge in offshoring of services is only the tip of the iceberg and we could be on the cusp of a trend similar to the one that happened three or more decades ago in manufacturing (Ramamurti, 2004).

“Fundamentally offshoring presents challenges to core theories which underpin many assumptions within IB research” Doh (2005: 696). Lack of research on offshoring in the field of International Business (IB) is partly due to IB’s

“research tradition and dominant view of internationalization that starts with the market (and its failure) to explain the rise of the multinational enterprise, and thus by default, that is not so receptive to a reverse path logic from hierarchy to market.” (Liesch et al., 2006: 4-5)

Offshoring is a vast and complex topic, and no single theory can explain the phenomena of offshoring. The researcher feels that offshoring can be better studied by subdividing it into five parts (Why, What, Where, How and Outcome (performance)).

First part (why offshore) would deal with motives for offshoring. Offshoring Research Initiative, a collaboration between Duke University and Archstone Consulting is tracking offshoring in 104 large and small US companies involved in hundreds of offshoring projects. Duke University CIBER/Archstone Consulting (2005) found that cost reduction was the number one motive (reported by 97% of the respondents) and access to new markets was cited as a motive only by 25% of the respondents. Other studies (Mann, 2003; Yourdon, 2004; Ventoro, 2005) have reported similar results.

Second part (what to offshore) would deal with firms deciding which services they want to maintain in-house and which they want to offshore. Dividing services into core and supplementary services would be the first step in identifying the candidate services for offshoring. Murray and Kotabe (1999) divided services into core and supplementary services and argued that core services are usually performed by the firm itself. A similar argument is supported by Prahalad and Hamel (1990) and Lei and Slocum

(1992). All these researchers also suggest that supplementary services may be performed internally or externally.

Third part would deal with 'where' to offshore; this would address the location decision (attractiveness of a foreign country for offshoring). Contractor and Mudambi (2008) used variables related to the country such as human capital, business environment, wage levels and IT infrastructure to determine the attractiveness of a country for offshoring of services, whereas Graf and Mudambi (2005), used infrastructure, country risk, government policy and human capital.

Fourth part would deal with 'how' to offshore (mode of offshoring). Kotabe and Murray (2004) have called for more research on 'how to source' and 'where to source'. Remote electronic access increases the ability of a firm to increase the number of countries from which it can source goods and services and also reduces the need for internalization (Zaheer and Manrakhan, 2001). According to TCA, firms could offshore services through a wide spectrum of modes ranging from complete internalization (foreign subsidiary) to complete externalization (arms length transaction) or intermediate modes (licensing, strategic partnership, joint venture etc).

Final Part would deal with analyzing performance of the firms involved in offshoring. Kotabe et al., (1998) and Murray and Kotabe (1999) both used modified TCA to study performance implications of sourcing strategy.

Except for few studies (Kotabe, Murray and Javalgi, 1998; Murray and Kotabe, 1999) that discuss service sourcing, most of the previous studies have focused mainly on global sourcing of components and finished goods by manufacturing firms (Kotabe, 1992; Murray, Kotabe and Wildt, 1995; Swamidass and Kotabe, 1993). Recently,

offshoring has started receiving some attention and researchers have started studying various aspects of offshoring.

Given the lack of literature on offshoring, the researcher feels that all the aspects of offshoring (Why, What, Where and How) need to be researched. This study focuses on factors influencing 'How' to offshore (mode of sourcing). The decision to research 'offshoring mode' choice was made because of lack of studies in IB and management field (related to mode of offshoring) and also other issues such as offshoring performance (especially financial performance) of the firm (which has received some attention) is very much dependent upon the offshoring mode choice. Also, the researcher feels that it (offshoring mode) is an important area of research that needs to be studied in order to better understand the concept of offshoring.

1.4 SCOPE OF THE STUDY AND UNIT OF ANALYSIS

This study focuses on the offshoring (of services) practices of large US corporations. Small and Medium Enterprises (SME) have limited resources, and because of this (lack of resources) are more likely to form joint ventures (Contractor and Lorange, 1988; Fayerweather, 1982; Stopford and Wells, 1972), where as large firms have the necessary resources to take advantage of various modes of offshoring. For example - large firms like General Electric (GE) are sourcing services from India internally (through their Indian subsidiary - Genpact), externally (arms length transactions with vendors like Infosys) and in collaboration (joint venture with Wipro) (GE, 2007). Hence studying large firms would ensure that the firm has the necessary capability to take advantage of various modes of offshoring.

It is clear from the above example that large firms use various modes of offshoring to source different functions. The firm's choice of offshoring mode may be influenced by firm capabilities, service characteristics, firm's motives and / or concerns related to the service function, which may be different for different functions and may not be accurately reflected by gathering aggregate firm level data. Also, the drawback of using the entire firm as a unit of analysis is that the person responding to the survey may not have the complete knowledge of the different offshoring activities of the entire firm. Hence the researcher feels that a more appropriate unit of analysis is just one offshored function and not the entire firm.

Although various factors related to the firm, vendor, host country, home country and others factors influence the mode of offshoring, this study explores only the effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services. Also, only offshoring of services and not goods is the focus of this study and only large US corporations irrespective of their industry are considered.

1.5 DATA COLLECTION AND METHODOLOGY

A link to an online survey created specifically for this study was sent to top executives of large US firms for collecting data for this study. Survey data was analyzed using multinomial regression, binomial regression and ordinal regression to empirically test the research model proposed in this study.

1.6 CONTRIBUTIONS OF THE STUDY

This study enhances the existing research on offshoring and makes practical contributions as well.

1.6.1 Academic contributions

“The average PhD thesis is nothing but the transference of bones from one graveyard to another” (Dobie, 1944).

Although, Dobie’s comment is dated, but one might reach a similar conclusion by looking at majority of the dissertations, in the IB and management field. Buckley (2002), along similar lines, argues that IB research agenda is running out of steam. Considering Buckley’s and Dobie’s comment, in this study, the researcher tried to a) do different things and b) do things differently.

a) Doing different things

As discussed under section 1.3 ‘Research motivation’, the literature on mode of offshoring, in IB and management field, is too scanty and also does not cover a very popular mode of offshoring, cooperative sourcing. The paucity of research barely qualifies as scratching the surface in terms of exploring such an important issue.

Also, it is very clear from section 1.4 ‘Scope of the study and Unit of analysis’, that this study has a very broad scope and is not limited to just one particular mode of offshoring or one particular industry. No attempt is made in this study to somehow narrow the scope and prove that this is the only study involved in researching the topic under consideration.

Hence we can conclude that this is perhaps the first study, in IB and management field, to exclusively focus on the factors influencing the mode of offshoring and also to look at internal, external and cooperative modes of offshoring. Furthermore, the generalizability of the results of this study is quite high, since this study covers various industries.

b) Doing things differently

A secondary contribution of this study to the IB and Management field is to introduce to the IB and Management field the appropriateness of single-item measures to self reported surveys. Although most of the studies in IB and Management field include a mix of single-item and multiple-item measures, this is the first study in the IB and Management field to use only single-item measures. Also, single-item measures in the IB and Management field have been used without testing their reliability. This study introduces to the IB and Management field, the methods used to evaluate reliability of single-item measures.

1.6.2 Managerial implications

Results of this study show that even though cost efficiency is the primary driver for offshoring, managers should pay attention to strategic objectives of the firm, when deciding the mode of offshoring. Appropriate mode is the one that balances cost efficiency with long term strategic objectives of the firm. Managers should also balance firm's motives for offshoring with the firm's concerns over offshoring and choose an appropriate mode. Also, offshoring performance (especially financial performance) of the firm is very much dependent upon the offshoring mode.

1.7 ORGANIZATION OF THE STUDY

This dissertation consists of six chapters. The first chapter gave an overview of the research; it discussed the purpose of the study, basic concepts used in this study, research motivation, scope of the study and contributions of this study. Chapter two identifies and discusses major theories necessary for grounding of this study. Chapter three discusses the effects of 4 Cs on mode of offshoring of services and corresponding hypothesis are developed. Chapter four describes the research methodology used to test the research hypotheses. Results of data analysis and hypotheses testing are discussed in chapter five and finally chapter six discusses findings of the study, research implications, managerial implications and limitations and future directions of this study.

Also, wherever possible this study uses IB and Management studies to support arguments and only in the absence of IB and Management studies, the arguments are supported with studies from other disciplines.

CHAPTER TWO

LITERATURE REVIEW

This chapter identifies and discusses major theories necessary for grounding of this study. This chapter is divided into three sections. First section looks at existing literature on mode of offshoring of services, to understand the theoretical concepts used in those studies to explain mode of offshoring. Also, this section narrows down the theoretical concepts that would be used in this study. Second section discusses the theoretical concepts identified in the first section and their applicability to explain mode of offshoring of services. Finally, the third section introduces a framework based on 4Cs to predict mode of offshoring of services.

1.1 LITERATURE ON MODE OF OFFSHORING OF SERVICES

Because of paucity of research on mode of offshoring of services in International Business (IB) and Management field, and also to increase the robustness of this study, the researcher looks at research on mode of offshoring of services, in Management Information Systems (MIS) field and also research on ‘mode of entry’ in IB and Management field, in order to identify theories used to explain offshoring mode choice. Mode of entry is the method by which a firm enters and serves a foreign market (Erramilli, 1987).

This section first briefly discusses literature on mode of offshoring of services in IB and Management field, followed by brief discussion of literature on mode of

offshoring of services in the field of MIS and finally literature on mode of entry in IB and Management field is discussed.

2.1.1 Literature on mode of offshoring of services in IB and Management field

Only a handful of studies in the field of IB and Management have examined the mode of offshoring of services. Kotabe et al. (1998) and Murray and Kotabe (1999) both used modified TCA to study the mode of sourcing for sourcing services. TCA is a principal theoretical framework used to explain and predict global sourcing of products (Murray and Kotabe, 1999). TCA is more concerned with cost minimization (Williamson, 1975). TCA is also referred to as Transaction Cost Economics (TCE) and Transaction Cost Theory (TCT) or Transaction cost (TC) in other studies.

Murray and Kotabe (1999) looked only at internal sourcing (global vs. domestic) of services and not any other mode of sourcing. Kotabe et al. (1998) discussed the location (domestic vs. global sourcing) and the ownership (internal vs. external) aspects of service sourcing strategy. Also, these studies were mostly focused on performance implications of the sourcing strategy and not on the mode of sourcing. An earlier study by the same authors (Murray and Kotabe, 1996) on sourcing of goods, indicated that TCA may be relevant in predicting the sourcing of tangible goods, but not intangible ones and since services are similar to intangible goods, TCA may not be applicable. According to Murray and Kotabe (1999), conventional TCA may not be applicable to sourcing of services, but modifications to TCA could provide an important first step towards developing a general theory for global sourcing of services.

2.1.2 Literature on mode of offshoring in MIS field

The scanty research on mode of offshoring (of services) in IB and Management field, barely qualifies as scratching the surface in terms of exploring such an important issue. Hence, we will look at research on mode of offshoring of services in MIS field. “Multinational business issues are enriched by analysis from multiple perspectives.” (Niederman, 2005:187). Niederman (2005) has identified offshoring as one of the area where both IB and MIS can gain a lot by cross-fertilization of ideas.

Offshoring has been widely researched in MIS and there is no shortage of theoretical concepts used to explain the phenomena of offshoring. But, MIS literature on offshoring is mostly focused on outsourcing and/ or offshore outsourcing of Information Technology (IT) services. Outsourcing and/ or offshore outsourcing is similar to external sourcing. Furthermore since the researchers in MIS field, mostly base their studies on IT services, the generalizability of the results of these studies to other types of services (other than IT services) may be limited.

Dibbern, Goles, Hirschheim and Jayatilaka (2004), provide an excellent survey and analysis of MIS outsourcing literature. Per Dibbern et al. the theoretical concepts used in MIS research to study outsourcing are: Agency theory (Jensen and Meckling, 1976), Game theory (Kreps, Wilson, Milgrom and Roberts, 1982; Nash, 1953; Spence, 1976; Fudenberg and Tirole, 1990), Innovation theories (Daft, 1978; Rogers, 1983; Schroeder, Van de Ven, Scudder, and Polley, 1989; Zaltman, Duncan and Holbek, 1973), Power and Politics theories (Pfeffer, 1981; 1982 ; Markus, 1983), Relationship theories (Klepper, 1995; Kern, 1997), Resource theories (or resource based view (RBV)) (Barney, 1991; Penrose, 1959; Pfeffer and Salancik, 1978; Thompson, 1967), Social Exchange

theory (Blau, 1964; Emerson, 1972; Homans, 1961), Strategic Management theories (Chandler, 1962; Miles and Snow, 1978; Porter, 1985; Quinn, 1980) and Transaction Cost theory (or Transaction cost analysis (TCA)) (Coase, 1937; Williamson, 1975; 1981; 1985).

It is not possible to study all the theories mentioned in the preceding paragraph, in one study. Also, out of these nine theories, numerous MIS studies have focused on TCA and RBV and these two theories are also widely used in IB and management field to explain international operations of multinational enterprises. Per RBV, a firm is a collection of resources and these resources can be a source of competitive advantage only when they (resources) are heterogeneous and immobile (Barney, 1991; Penrose, 1959)

Since TCA and RBV have been used to explain international operations of multinational enterprises in both IB and MIS fields, this study will focus on TCA and RBV, and test the explanatory power of these theories for non IT services as well.

2.1.3 Literature on mode of entry in IB and Management field

“The Foreign market entry mode is an institutional arrangement that makes possible the entry of a company’s products, technology, human skills, management, or other resources into a foreign market.” (Root, 1982:5). This definition of entry mode is considered bedrock of entry mode definitions and subsequent definitions of entry modes were developed around it (Sharma and Erramilli, 2004). Mode of entry is the method by which a firm enters and serves a foreign market (Erramilli, 1987). Mode of entry and entry mode, mean the same thing and are used interchangeably in this study.

Dunning (1993a), identified four reasons for MNEs to go overseas: First is resource seeking - primary motive for firms to go overseas is to acquire raw materials and minerals at a lower cost or to access cheap unskilled or semi-skilled labor, or to acquire technological capability, management, marketing, or organizational skills (Dunning, 1993a). Second, market seeking – Entry into foreign markets is motivated by the desire to market goods and services to markets in that region. The size of the market usually dictates the mode of entry. Markets with heavy local demand, justifies local production; for low local market potential exporting is the preferred method (Dunning, 1993a). Third, efficiency seeking - firms rationalize production between a group of affiliates within a region, or between parent and number of affiliates. Hence instead of producing the same or similar products in each market, each affiliate specializes in fewer products and supplies the market of all countries (Dunning, 1988; 1993a). Fourth, Strategic asset and capability seeking – Firms are more focused on maintaining or strengthening their long term competitive position than on short term cost savings (Dunning, 2002a; Hamel and Prahalad, 1985). Firms acquire assets that enhance their existing capabilities and give them competitive advantage.

In terms of Offshoring, motives for firms to go overseas are to: reduce cost, by using cheap foreign labor (similar to resource seeking); rationalize production of services (efficiency seeking) and as part of a growth strategy, to access strategic foreign assets (for ex. foreign highly skilled professionals), that are scarce in their home country (strategic asset seeking). Market seeking motive is not the primary motive in offshoring. Results of various offshoring surveys seem to support this view. Duke University CIBER/Archstone Consulting (2005) survey found that cost reduction was the number

one motive (reported by 97% of the respondents); followed by growth strategy (73%); access to qualified professionals (70%) and access to new markets was cited as a motive only by 25% of the respondents. Other studies (Mann, 2003; Yourdon, 2004; Ventoro, 2005) have reported similar results.

The major difference between ‘mode of entry’ and ‘mode of offshoring’ is that the studies on mode of entry are primarily focused on market seeking objective, whereas offshoring studies are primarily focused on cost minimization aspect (resource seeking and efficiency seeking).

Entry modes are generally classified based on level of control (Anderson and Gatignon, 1986; Hill, Hwang and Kim, 1990; Root, 1994) or resource commitment (Hill et al., 1990). Most of the entry modes can be broadly classified into three general categories: exporting (direct exporting and indirect exporting), contractual modes (licensing and franchising) and investment modes (wholly owned subsidiary, majority or minority joint venture) (Anderson and Gatignon, 1986; Driscoll and Paliwoda, 1997; Root, 1987; Sharma and Erramilli, 2004).

Similarly, firms could offshore services through a wide spectrum of modes ranging from complete internalization (foreign subsidiary) to complete externalization (arms length transaction) or intermediate modes (licensing, strategic partnership, joint venture etc).

2.1.4 Theories used to explain mode of entry in IB and management field

Some of the theories that have been used to explain entry mode choice in IB and management field are Hymer's theory, International Product Life Cycle theory, Internationalization theory, Internalization theory, Eclectic Paradigm, TCA and RBV.

The most widely used theory in IB and management field to explain entry mode is TCA (Coase, 1937; Williamson, 1975; 1981; 1985), recently RBV (Barney, 1991; Penrose, 1959; Pfeffer and Salancik, 1978) is gaining lot of attention (Peng, 2001). RBV has better explanatory power for predicting firms entry mode, than other theories (Ekeledo and Sivakumar, 2004; Makhija, 2003).

According to TCA, external factors (market failure) drive firm's structure, whereas per RBV, internal factors (firm's strategy and resources) drive firm's structure. TCA generally favors low control entry modes (Anderson and Gatignon, 1986) and RBV favors high control mode (Gatignon and Anderson, 1988). Hence studying offshoring mode using both TCA and RBV helps in better understanding of the phenomena, as TCA and RBV are not contradictory but complementary theories (Kogut and Zander, 1993; Madhok, 1997; Williamson, 1999).

2.2 IB AND MANAGEMENT THEORIES AND THEIR ABILITY TO EXPLAIN/ PREDICT /SUPPORT VARIOUS OFFSHORING MODES

It is clear from the preceding discussion that both TCA and RBV have been used to explain international operations of multinational enterprises in both IB and MIS fields. This section discusses TCA and RBV theories, their limitations and their ability to explain/ predict /support various offshoring modes.

2.2.1 Transaction Cost Analysis (TCA)

According to Teece, TCA

“provides a framework for discriminating between those transactions which need to be internalized and those which do not. Without such a framework, internalization theories of the multinational enterprise must be considered incomplete, and perhaps even tautological.” (1986:24-25).

According to TCA, firms can organize transactions through market (no integration or externalization) or internalize them within the organization (full integration or internalization), or by some other mode reflecting an intermediate degree of integration (cooperative sourcing). In the long run, the method that economizes transaction cost is the most efficient method (Williamson, 1985).

Per TCA, firms employ modes of operation that minimize production and transaction cost (Williamson, 1985). Production cost includes the direct cost of producing and delivering a product or a service (Poppo and Zenger, 1998). Transaction cost, is the cost associated with discovering prices, undertaking negotiations, drawing up contracts and settling disputes (Williamson, 1985).

TCA generally favors low control entry modes, (Anderson and Gatignon, 1986) as one of the main underlying assumptions in TCA is that markets are competitive (Hennart, 1989). In competitive markets there are many potential suppliers; hence more chances that firm will be able to buy a particular input at a competitive price, without worrying about supplier's opportunistic behavior (Anderson and Gatignon, 1986). Only under conditions of market failure TCA recommends hierarchies (internalized transactions). Also, under conditions of market failure TCA does not suggest that equity modes of entry are always superior to markets (Hennart, 1989), depending upon the

circumstances, either equity modes or contractual agreements negotiated through markets may be more efficient (Brouthers and Nakos, 2004).

TCA identifies two main costs: market transaction cost and control cost (Williamson, 1985). Market transaction costs are the costs associated with buying the inputs, whereas control costs are the costs associated with making the inputs. According to Hennart (1989) it is efficient for a company to organize itself as a hierarchy, only when internal organizational costs are lower than market transaction costs.

Transaction cost is influenced by various factors such as bounded rationality, opportunism, asset specificity, uncertainty, information impactedness and small numbers bargaining (Jones and Hill, 1988). Any of these six variables alone or in combination may lead to market failure and the firms may choose hierarchy over market (Jones and Hill, 1988). In addition to these six variables, transaction frequency also influences transaction cost.

Bounded rationality - In a realistic world, decision makers cannot look at all the possibilities and reach an optimal solution, instead they ‘satisfice’ or in other words pick an alternative that meets a certain threshold (Simon, 1957; 1979). This human limitation is called bounded rationality (Jones and Hill, 1988).

Opportunism - Opportunism is the seeking of self interest with guile (Williamson, 1985). Opportunism or the perception of opportunistic behavior leads to complex contracting and hierarchy (Williamson, 1993).

Asset specificity – Asset specificity refers to the physical and human resources that are specific to a narrow range of transactions and lose value outside these narrow ranges of transactions (Williamson, 1985; Williamson and Ouchi, 1981).

Asset specificity is usually associated with proprietary knowledge or technology, which may be the basis for a firm's competitive advantage (Anderson & Gatignon, 1986) and hence the firm is more concerned with protecting this asset (Erramilli & Rao, 1993). Hence increase in asset specificity results in increased use of hierarchy to gain greater control over the asset and also to protect it from misuse (Hennart, 1991).

Since increase in asset specificity makes the asset less valuable outside the transaction, suppliers are reluctant to invest in those assets, this also may leave the firm with no choice, but to either enter in a long term contract or internalize the operation. Hence asset specificity may also create switching costs in case of unsatisfactory performance by the initial supplier (Erramilli & Rao, 1993).

Uncertainty – When operating domestically firms face uncertainties related to supply of product (such as quality, quantity and performance of the product) or changes in technology, consumer preference and so on, whereas in international operations firms face additional uncertainties related to host country political and legal environment and the ability to enforce contracts (Erramilli & Rao, 1993; Gatignon & Anderson, 1988; Williamson, 1985). Firms are better off selecting non-equity or low-investment mode in countries with high environmental uncertainty (Anderson & Gatignon, 1986), as this gives them flexibility to change partners or exit the market, if needed.

Information impactedness - Information impactedness refers to the information asymmetry between the transacting parties (Jones and Hill, 1988). One partner may have more information than others and may use it to his advantage (Jones and Hill, 1988) or partners may misrepresent their capabilities (Eisenhardt, 1989). Information

impactedness may result in firms internalizing transaction, in an attempt to resolve information asymmetry (Williamson, 1991).

Small numbers bargaining – Small numbers bargaining is the result of limited number of exchange partners. Lack of competition between existing suppliers may results in opportunistic behavior by some of the existing suppliers. Transaction costs may be minimized through internalization of production, under conditions of limited supplier competition (Williamson, 1988). Various studies (Caves and Bradburd, 1988; Levy, 1985; McDonald, 1985; Pisano, 1990) have found support for internalization, as a result of lack of supplier competition. .

Transaction Frequency - Transaction frequency is the frequency with which transactions recur (Williamson, 1983). High transaction frequency does not necessarily imply internal mode of sourcing, but high transaction frequency coupled with high asset specificity increases the odds of firms using internal mode of sourcing (Williamson, 1983). Also, in situations of high asset specificity and low transaction frequency, firms should not use internal mode of sourcing (Williamson, 1983).

This section provided an overview of TCA, its (TCA's) limitations and applicability to predict mode of offshoring of services is discussed next.

a) TCA limitations

TCA is not effective for polytomous choices (e.g. internal, external and shared control modes), but is effective only for dichotomous choices (e.g. internal vs external modes) (Gatignon and Anderson 1988; Erramilli and Rao 1993).

“TC [Transaction Cost] economics is *fundamentally incapable* of being a complete theory of economic organization. The notion of the firm as a bundle of transactions or contracts is an inadequate and shallow basis for a theory of the

firm since it basically ignores the essential notion of the firm as a bundle of knowledge, and the underlying processes therein.” (Madhok, 1996: 577).

TCA arguments need to be supplemented with considerations from institutional and cultural environments (Brouthers, 2002). According to Madhok (1996), TCA is a static approach and does not consider issues pertinent to firm capabilities. According to Porter (1980), entry mode decision must go beyond the analysis of costs and investment requirements and must consider the broader strategic issues of integration versus use of market transactions.

b) Applicability of TCA to predict mode of offshoring of services

A study by Murray and Kotabe (1996) on sourcing of goods, indicated that TCA may be relevant in predicting the sourcing of tangible goods, but not intangible ones and since services are similar to intangible goods, TCA may not be applicable. According to Murray and Kotabe (1999), conventional TCA may not be applicable to sourcing of services, but modifications to TCA could provide an important first step towards developing a general theory for global sourcing of services.

TCA favors cost minimization and results of various offshoring surveys (Mann, 2003; Duke University CIBER/Archstone Consulting, 2005; Yourdon, 2004; Ventoro, 2005) indicate that cost reduction is the primary driver for offshoring. According to TCA, external factors (market failure) drive firm’s structure, Murray and Kotabe (1999) argue that external environment would influence the mode of sourcing of services. Also asset specificity, an important variable influencing transaction cost, per Murray and Kotabe (1999) influences entry mode decisions. Further according to TCA high transaction frequency coupled with high asset specificity increases the odds of firms using internal

mode of sourcing (Williamson, 1983), this argument was also supported by Murray and Kotabe (1999). Finally, small numbers bargaining also influences transaction cost. Kotabe et. al., (1998) argue that external availability of services influences mode of sourcing.

Hence it is clear from the preceding paragraph that TCA can be applied to predict mode of offshoring of services.

2.2.2 Resource Based View

Industrial Organization (IO) model, prevalent during the 1960s through 1980s viewed external environment as a primary determinant of firm strategies (Hoskisson, Hitt, Wan and Yiu, 1999) and industry in which a firm competes having stronger influence on firm performance than managerial decisions (Bowman and Helfat, 2001). IO model assumed the firms (competing within an industry or a certain segment of the industry) to control similar resources and pursue similar strategies (Porter, 1981) and also the resources controlled by the firms to be highly mobile across firms (Barney, 1986a).

RBV takes a completely different view, according to Barney (1991), the resources firms control may be heterogeneous and these resources may not be perfectly mobile (contrary to IO models assumption of homogeneous and perfectly mobile resources). Also firm's resources (and not the industry as assumed under IO model) are a source of competitive advantage (Barney, 1991). Per Barney (1991), only the resources that are valuable, rare, inimitable and non-substitutable can be sources of competitive advantage.

Firm resources include all assets, capabilities, organizational processes, firm attributes, information and knowledge controlled by a firm that enable it to conceive and

implement strategies efficiently and effectively (Barney, 1991). Resources are valuable when they enable a firm to conceive of or implement strategies to take advantage of opportunities and/ or neutralize threats in the external environment. Resources are rare when they are possessed by only the firm or few of its current or potential competitors. Resources are inimitable, when either they are difficult to imitate or the cost of imitation is prohibitively high. And finally resources are non-substitutable when competing firms cannot come up with their strategically equivalent resources (Barney, 1991).

Sole ownership is the default entry mode for RBV, as full control over the foreign operations ensures protection of firm's competitive advantage (Gatignon and Anderson, 1988; Erramilli and Rao, 1993). RBV favors high control mode (Gatignon and Anderson, 1988), whereas TCA generally favors low control entry modes (Anderson and Gatignon, 1986)

According to Madhok (1997), framework based on resource based theory, provides a better explanation of entry mode strategies. On similar lines Ekeledo and Sivakumar's (2004) empirical findings suggest that U.S. manufacturing and service firms' entry mode strategies are better explained by RBV.

Traditional theories of the firm assumed static state of competition whereas RBV assumes dynamic competition, which is a very realistic assumption in light of spread of globalization. RBV provides an explanation for entry mode choices based not only on the exploitation of existing advantages but also on the generation of new ones (Peng, 2001). "RBV has made IB research more theoretically rigorous" (Peng 2001:819). RBV's origin could be traced back to Penrose (1955, 1959). Wernerfelt (1984) revived the theory by analyzing the firm from the resources side rather than product/market side.

According to RBV a firm's foreign market entry strategy is based on its assets, capabilities and competitive advantage (Grant, 1991). Firm's resources determine firm capabilities and limitations (Grant, 1991). Firm's entry mode choice is a fit between the firm's resources and external opportunities (Conner, 1991, Johanson and Valhne, 1977). Also, several factors related to the host country such as host country political, legal and business environment, supporting infrastructure, availability of vendors/ partners and availability of raw materials and skilled labor may also influence the type of entry mode a firm 'can' choose.

According to TCA, external factors (market failure) drive firm's structure, whereas per RBV, internal factors (firm's strategy and resources) drive firm's structure. TCA generally favors low control entry modes (Anderson and Gatignon, 1986) and RBV favors high control mode (Gatignon and Anderson, 1988). TCA favors cost minimization, whereas RBV is focused on resource acquisition, maintenance and deployment (Penrose, 1959; Barney, 1991; Peng, 2001). Hence studying offshoring mode using both TCA and RBV helps in better understanding of the phenomena, as TCA and RBV are not contradictory but complementary theories (Kogut and Zander, 1993; Madhok, 1997, Williamson, 1999).

This section provided an overview of RBV, its (RBV's) limitations and applicability to predict mode of offshoring of services is discussed next.

a) RBV limitations

Despite the merits of RBV, Mahoney and Pandian,(1992) claim that it is not a comprehensive theory of expansion of the firm and researchers (Acedo, Barroso and Galan, 2006; Newbert, 2007) suggests that it is not a stand alone theory. Also, some

(Kogut and Zander, 1993; Madhok, 1997, Williamson, 1999) view RBV as complementary to TCA. RBV has not looked beyond the properties of resources and resource markets to explain firm heterogeneity (Oliver, 1997). Also, RBV has not looked at the social context (firm tradition, network ties and regulatory pressures) within which resource selection decisions are embedded (Ginsberg, 1994) and how firms actually make or fail to make rational resource choices in pursuit of economic rent (Oliver, 1997).

b) Applicability of RBV to predict mode of offshoring of services

So far there has not been a single study in the field of IB and management that has applied RBV to predict mode of offshoring of services. But RBV (and its variant Organizational Capability (OC) perspective) has been used by various scholars (Ekledo and Sivkumar, 2004; Erramilli, Agarwal and Dev, 2002; Sanchez-Peinado, Pla-Barber and Hebert, 2006; Tsang, 1997) to explain the entry mode decision of service firms.

Under RBV, several factors related to the host country such as host country political, legal and business environment, supporting infrastructure, availability of vendors/ partners and availability of raw materials and skilled labor are believed to influence the type of entry mode a firm can choose. The researcher believes that these same factors may influence the mode of offshoring of services.

2.3 FRAMEWORK

This section briefly discusses some frameworks used to explain entry mode decision for services and also introduces the framework that will be used in this study.

Frameworks to explain entry mode have been developed by researchers by usually applying existing theories either as is or with some modifications to existing

theories by introducing new variables. Modifications have been suggested numerous times to TCA (Murray et al., 1999) and also to RBV (Erramilli et al., 2002; Sanchez-Peinado et al., 2006).

Per Gao and Brown (1998), entry mode selection is influenced by four categories of variables: external (host country) environment, internal (firm) environment, entrant strategy and relationship or lack of it between the entrant and a potential partner. Gao (2004) proposed a framework based on these four categories of variables to explain the entry mode. This framework is not suitable for offshoring as it is geared towards firms going overseas with market seeking motive.

Since the existing frameworks are not specifically designed to explain modal choice in offshoring of services, the researcher proposes a framework based on TCA and RBV and takes into account the firm capabilities, the characteristics of the service being offshored, the causes (motives) for offshoring and the concerns regarding offshoring of the service. This framework is called 4Cs (capabilities, characteristics, causes and concerns) framework.

Capabilities – Capabilities refers to firm capabilities. Firm's resources and assets provide firm capabilities. Firm's size, international experience, tacit know-how, managerial experience, assets and resources provide firm capabilities that it can strategically deploy in a foreign market. When entering a foreign market, firm capabilities may enable or constrain the choice of offshoring mode.

Characteristics – Characteristics refers to the characteristics of the service that is offshored. Service characteristics such as strategic importance of the service to the firm, need for customization of the service, proprietary nature and complexity of technology

used to produce / perform the service, level of interaction between the firm and the customer and/or between the firm and the vendor and/or between the vendor and the customer and frequency of transactions, may influence the mode of offshoring.

Causes (Motives) – Firm’s desire to reduce cost and /or reduce time (efficiency seeking); access skills and /or technology (asset seeking); access markets (market seeking); improve service quality and host country incentives, may also influence offshoring mode selection.

Concerns – Firm’s concerns over data security/privacy, intellectual property, host country political or economic uncertainty, cultural difference between host and home country, uncertainty over quality and / or volume of services being produced / performed in the host country, lack of partners/ vendors in host country, potential for opportunistic behavior by partners/ vendors in host country, transaction cost, start up cost, production cost, loss of control over the overseas operation, home country employee morale and loss of innovative capacity in home country, may also influence offshoring mode selection.

2.4 SUMMARY

This chapter identified TCA and RBV as two theories that have been used in both MIS and IB and management fields to explain offshoring mode decisions of firms. Also, a framework based on these two theories was introduced in this chapter. The next chapter will discuss this framework in detail and propose some hypotheses that would be tested in subsequent chapters.

CHAPTER THREE

CONCEPTUAL FRAMEWORK

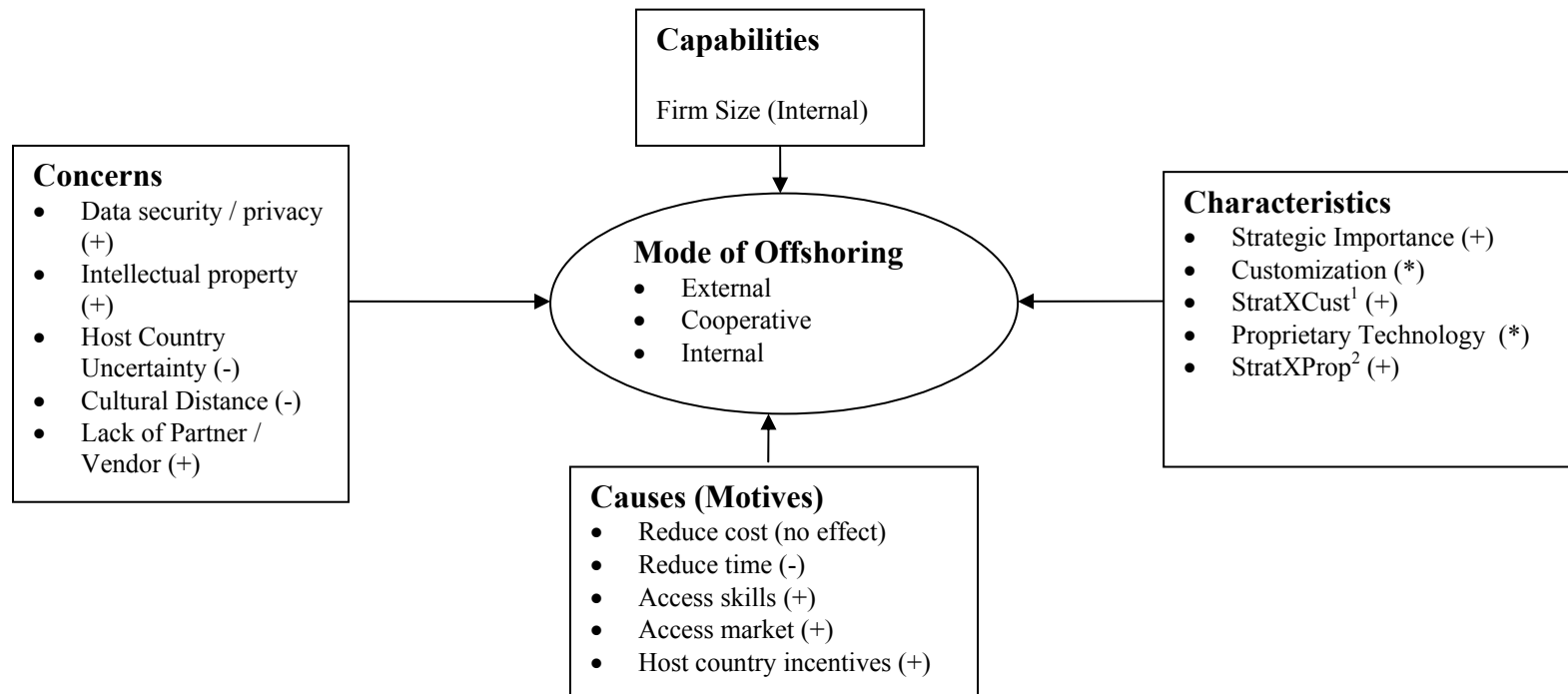
Previous chapter gave an overview of the conceptual framework; this chapter discusses the effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services and corresponding hypotheses are developed.

3.1 INTRODUCTION

Figure 3.1 represents the framework developed for this study. Although various factors related to the firm, partner / vendor, host country, home country and others factors influence mode of offshoring, this study explores only the effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services. Also, the factors listed under firm capabilities, service characteristics, firm's motives and firm's concerns are by no means exhaustive. It is not possible to consider all possible factors under 4Cs in one study, hence only the factors considered influential by other studies are considered in this study. The goal is not to be exhaustive, but to provide a basic framework for understanding of mode of offshoring. Both TCA and RBV will be used to support this framework.

The next section discusses various variables used in the conceptual framework and corresponding hypotheses are developed. First dependent variable 'mode of offshoring' is discussed and then independent variables related to firm capabilities, service characteristics, firm's motives and firm's concerns are discussed.

Fig 3.1 4Cs Framework



+ refers to the firm’s preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

- refers to the firm’s preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

* refers to internal mode not preferred by the firm.

¹ refers to interaction term between Strategic Importance and Customization

² refers to interaction term between Strategic Importance and Proprietary Technology

3.2 VARIABLES AND HYPOTHESES DEVELOPMENT

3.2.1 Dependent variable - Mode of Offshoring

Mode of offshoring is the method by which a firm procures/ produces services from/ in a foreign location. According to TCA, firms could offshore services through a wide spectrum of modes ranging from complete internalization (foreign subsidiary) to complete externalization (arms length transaction) or intermediate modes (licensing, strategic partnership, joint venture etc).

In this study, these various modes of offshoring are classified based on the level of control (Root, 1987) the firm has over the production/ performance of the offshored service. Complete internalization is referred to as 'internal sourcing', intermediate mode as 'cooperative sourcing' and complete externalization as 'external sourcing' in this study. The level of control is high for internal sourcing, low for external sourcing and medium for cooperative sourcing. The terms 'mode of offshoring', 'offshoring mode', 'mode of sourcing' and 'sourcing mode' mean the same thing and are used interchangeably in this study.

Sourcing modes differ from each other based on control (Root, 1987) and resource commitment (Anderson and Gatignon, 1986). Also, according to Anderson and Gatignon (1986), control is the most important factor that affects both risk and return. Low level of control is usually associated with a mode requiring minimal commitment of company resources, high level of control with a mode requiring maximum commitment of company resources and medium level of control requires moderate commitment of company resources (Anderson and Gatignon, 1986). Which implies that, level of resource

commitment is high for internal sourcing, low for external sourcing and medium for cooperative sourcing. Also, since level of ownership is usually associated with level of resource commitment, we can conclude that level of ownership is high for internal sourcing, low for external sourcing and medium for cooperative sourcing.

Kotabe and Omura (1986) identified 64 alternative sourcing strategies for sourcing of goods, encompassing four fundamental decisions related to 1) product locations (home country, foreign market country, developed third party country and developing third party country) 2) phases of production 3) internal/external component sourcing and 4) internal/external assembly.

Erramilli and Rao (1990) came up with nine sourcing modes and arranged them in an ordinal scale based on involvement (1=lowest, 9=highest). In a later study Erramilli and Rao (1993) collapsed the entry modes into two categories, shared controlled mode and full control mode.

Murray and Kotabe (1999) used degree of internal sourcing as one of their dependent variable. Lacity and Willcocks (1998) came up with three sourcing strategies total insourcing, total outsourcing and mixed sourcing. On similar lines, this study classifies mode of offshoring into following three modes:

i) Internal sourcing or internalization – The source providing the service is located within the organization's boundary, but located outside the buyer's country. Ex: parent sourcing services from its subsidiaries or subsidiaries sourcing from other subsidiaries or parent located in different countries.

Internal sourcing requires high level of resource commitment and ownership and also provides high level of control over foreign operations.

ii) Cooperative sourcing - The source providing the service is located outside the buyer's country, but the buyer and supplier either share equity or resources or are bound in a contractual relationship or licensing agreement. Ex: parent or subsidiaries sourcing services from a supplier with whom they either share equity or resources or are bound in a contractual relationship or licensing agreement.

Cooperative sourcing could be achieved by sourcing through majority joint venture, 50/50 joint venture, minority joint venture and/or licensing. Cooperative sourcing requires medium level of resource commitment and ownership and also provides medium level of control over foreign operations.

iii) External sourcing or externalization - The source providing the service is located both outside the organization's boundary and outside the buyer's country. Ex: parent or subsidiaries sourcing services from an independent supplier either on an arms length basis or long term relationship basis.

External sourcing requires low level of resource commitment and ownership and also provides low level of control over foreign operations.

Table 3.1 summarizes the difference between various offshoring modes.

Table 3.1 Difference between various offshoring modes

Offshoring Mode	Service is produced /performed	Level of Control	Level of resource commitment	Level of Ownership
Internal	within the firm, but outside the US	High	High	High
Cooperative	outside the US, but in cooperation with another firm(s)	Medium	Medium	Medium
External	both outside the US and outside the firm	Low	Low	Low

This study is focused on only large firms, as this ensures that the participants in this study are not limited to certain modes because of lack of resources.

3.2.2 Independent Variables

As per the conceptual framework, fig 3.1, independent variables or explanatory variables are grouped under four parts: Capabilities, Characteristics, Causes and Concerns.

3.2.2.1 Capabilities

Capabilities refer to firm capabilities. According to Resource Based View (RBV), firm's resources and assets provide firm capabilities. Firm's size, international experience, tacit-know, managerial experience, other assets and resources provide firm capabilities that it can strategically deploy in a foreign market. When entering a foreign market, firm capabilities may enable or constrain the choice of offshoring mode.

Firm size is used in this study as a measure of firm capabilities. Other factors such as international experience and managerial experience are not used in this study, as Agarwal and Ramaswami (1992) found that firm size and multinational experience were highly correlated. Also, the researcher believes that managerial experience would also be highly correlated, with international experience and or firm size.

a) Firm size

As large firms have the necessary resources, they tend to choose sole venture to coordinate activities on a global basis (Bartlett, 1986; Bartlett and Ghoshal, 1986; Doz,

Prahalad and Hamel, 1988), whereas Small and Medium Enterprises (SME) have limited resources and they (SMEs) are more likely to form joint ventures (Contractor and Lorange, 1988; Fayerweather, 1982; Stopford and Wells, 1972). According to Porter and Fuller (1986), large firms are more concerned with global strategic position than transaction costs associated with a given market.

Also, because of greater bargaining power to negotiate for greater ownership and control, large firms may be able to open sole ventures even in countries with restrictive investment policies (Lecraw, 1984). Another important reason for large firms to choose sole venture is that, even though large firms may be eligible to receive price reductions from suppliers (Mol, Van Tulder and Beije, 2005), large firms may not find suppliers who would be able to supply them, because of the sheer volume of the services procured by them.

Because of all the above reasons increase in firm size would lead firm to internalize the offshoring operation or cooperate with a local vendor to produce / perform the service.

H1: As firm size increases, firms would prefer an internal mode of offshoring over either a cooperative or an external mode.

3.2.2.2 Characteristics

Characteristics refer to the characteristics of the service that is offshored. Service characteristics such as strategic importance of the service to the firm, need for

customization of the service and proprietary nature of technology used to produce / perform the service may influence the mode of offshoring.

a) Strategic Importance of the Offshored Service

According to Porter (1980), the entry mode decision should not be narrowly focused on analysis of costs and investment requirements, but should consider the broader strategic issues. Corporate goals and objectives determine the entry mode, firms with aggressive goals and objectives favor entry modes that involve substantial resource commitment and control over the foreign operations and firms with limited goals and objectives favor entry modes involving minimal commitment of resources (Douglas and Craig, 1995). Also, according to Oliver (1988), strategic choice plays a greater role in shaping the organizational structure than any other alternative factors.

Services that enable a firm to gain/maintain competitive advantage over the competition are considered strategically important to the firm. The higher the strategic importance of the product / service to the organization the less likely it will externalize that product / service (Bruck, 1995; Carmen and Langeard 1980; Lovelock 1992; Prahalad and Hamel 1990; Quinn and Hilmer, 1995). According to RBV, using external sources for strategically important services may increase the chances of firm losing its competitiveness in case of opportunistic behavior by the supplier.

Murray and Kotabe (1999) divided services into core and supplementary services and argue that core services are usually performed by the firm itself. A similar argument is supported by Prahalad and Hamel (1990) and Lei and Slocum (1992). These

researchers (Lei and Slocum, 1992; Murray and Kotabe, 1999; Prahalad and Hamel, 1990) also suggest that supplementary services may be performed internally or externally.

“Core services are the necessary outputs of an organization that consumers are looking for, while supplementary services are either indispensable for the execution of the core service or are available only to improve the overall quality of the core service bundle.” (Murray and Kotabe, 1999:792)

According to Earl (1996), today's information technologies are so integrated that it may not be possible to clearly distinguish between core and non-core activities. This may result in organizations outsourcing the entire Information Technology (IT) functions, part of which may be core activity (Hancox and Hackney, 1999). In these situations, the organization may seek higher level of control over vendor activities (Saunders, Gebelt and Hu, 1997). Also, it is possible that core services may lose differential advantage and the firm may increase its reliance on supplementary services to enhance competitive advantage (Murray and Kotabe, 1999). Hence, the researcher feels that, it is not necessarily the categorization of the service into core or supplementary service that drives the mode of offshoring, but the strategic importance of the service to the firm. Therefore, even a supplementary service could be sourced internally, if it is strategically important to the firm.

H2: The higher the strategic importance of the offshored service to the firm, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

b) Customization

Customizing service according to the customer's needs requires considerable knowledge about the service. Moreover, increase in customization requires an increase in the service provider's investment in physical and human resources and may also involve specialized assets (Erramilli and Rao, 1993). Furthermore, these investments in physical and human resources may not be useful outside the specific transaction under consideration (Anderson and Gatignon, 1986; Erramilli and Rao, 1993; Williamson, 1981b). According to TCA, increase in customization results in increase in asset specificity.

A basic tenet of TCA is that, increase in asset specificity, increases the hazards associated with market-based exchange and increases the need for internalizing the transaction (Williamson, 1975; 1985). Several studies (Anderson and Gatignon, 1986; Anderson and Coughlan, 1987; Davidson and McFetridge, 1985; Erramilli and Rao, 1993; Gatignon and Anderson, 1988; Kim and Hwang, 1992) found that degree of control (level of ownership) was positively related to the degree of asset specificity, whereas a study by Osborn and Baughn (1990) did not support this (positive relationship between asset specificity and level of control).

Coase (1937) argued that increase in asset specificity alone may not be enough to ignore market based transaction. Also, according to RBV, core activity must be performed internally and supplementary services may be performed internally or externally (Prahalad and Hamel, 1990). Hence even with the increase in the customization needs (asset specificity) for the service, the firm may not want to internalize the

production / performance of the service, if the service is not strategically important to the firm.

H3a: Increase in customization needs (asset specificity) for the service will not lead to firm using internal mode of offshoring.

H3b: As the need for customization of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.

c) Proprietary Technology

According to Murray et al., (1995), proprietary technology is the unique technology, such as technological know-how and marketing and management skills possessed by a firm. Proprietary nature of a firm's assets is a major product-related factor influencing market entry strategies (Ekeledo and Sivakumar, 1998). Ekeledo and Sivakumar (2004) argue that a firm can protect its proprietary know-how by maintaining full control over production functions. Moreover, according to Ekeledo and Sivakumar (1998), a service firm is more likely to adopt the sole ownership mode when it wants to protect its proprietary assets, as intellectual property laws are not uniform throughout the world and the enforcement of such laws even in the countries that have intellectual property laws is questionable.

Several researchers (Caves, 1982; Davidson, 1982; Davidson and McFetridge, 1984; Stopford and Wells, 1972; Telesio, 1979) have found a positive relationship between research and development expenditures (which generate proprietary knowledge) and direct investment by firms in foreign operations.

Both TCA and RBV support the use of sole ownership for proprietary technology, but a firm needs to balance the need for integration with the costs of controlling the hierarchical structure, when protecting its proprietary know-how by integrating its foreign operations (Erramilli & Rao, 1993; Hennart, 1989). According to TCA, firms tend to select entry modes that balance the advantages of integration with the additional costs of control (Brouthers, 2004). Williamson (1979; 1983) argue that, a firm can benefit from the scale economies of the marketplace by sourcing components that involve no proprietary technology, and thus avoiding the bureaucratic disadvantages that accompany internal sourcing. This argument could be extended to services that are produced/performed with the use of proprietary technology that is not strategically important to the firm.

As technology rapidly changes, firms are unwilling to invest in new and even for that matter old proprietary technologies (that are not strategically important to the firm) and hence would prefer to purchase these services, even if proprietary technologies are used in their production. According to Kotabe et. al. (1998), internal sourcing of supplementary services tends to dilute a firm's core service competencies.

A firm may select sole ownership as an entry mode, in order to protect the proprietary content of a product (Anderson and Gatignon 1986). This argument could be extended to services and hence depending upon the need to protect the proprietary

content of the services or in other words if the service using proprietary technology is of strategic importance to the firm, then the firm would be more likely to internalize the production / performance of the service.

Although studies related to RBV do mention proprietary technology as a source of competitive advantage, but when it comes to empirical testing no distinction is being made between proprietary technology that is a source of competitive advantage and proprietary technology that is not a source of competitive advantage.

H4a: Increase in proprietary nature of technology used in production/performance of the service, will not result in increase in firm using internal mode of offshoring.

H4b: As the proprietary nature of technology used in production/performance of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.

3.2.2.3 Causes (Motives)

Primary motives for sourcing of goods are cost reduction (Monczka and Giunipero, 1984; Monczka and Trent, 1991a; b; 1992; 1995; Spekamn, 1991; and Handfield, 1994), quality (Handfield, 1994, Carter and Narasimhan, 1990; Min and Galle, 1991), access to technology (Frear, Metcalf and Alguire 1992; Kotabe and Murray

1990; Monczka and Trent, 1991a; b; 1992; 1995) and shorter product development and life cycles (Goldberg, 1994; Womack, Jones and Ross, 1990).

According to Monczka and Trent (1995), primary motives for offshoring of goods are 1) cost reduction 2) access product technology 3) access process technology and 4) introduction of competition to domestic suppliers. Also, Monczka and Trent (1995) did not find quality improvements to be a motivating factor in offshoring of goods.

In terms of offshoring of services, motives for firms to go overseas are to: reduce cost, by using cheap foreign labor (similar to resource seeking); rationalize production of services (efficiency seeking) and as part of a growth strategy, to access strategic foreign assets (e.g. foreign highly skilled professionals), that are scarce in their home country (strategic asset seeking). Market seeking motive is not the primary motive in offshoring. Results of various surveys seem to support this view. Duke University CIBER/Archstone Consulting's 2005 survey, found that cost reduction was the number one motive (reported by 97% of the respondents); followed by growth strategy (73%); access to qualified professionals (70%) and access to new markets was cited as a motive only by 25% of the respondents. Other studies (Mann, 2003; Yourdon, 2004; Ventoro, 2005) have reported similar results.

In this study under causes (motives) following variables are considered: cost reduction, reduce time to market, access skills, access markets and host country incentives.

a) Cost reduction

As a product matures its features become standardized and competition intensifies. At this stage the firm can compete either by differentiating its product from the competition or by competing based on price or by doing both. If the firm favors lowering cost, then offshore production presents an attractive solution, because of lower production costs in developing countries (Vernon, 1966, 1979). This argument is also applicable to services.

Several studies on global sourcing of products (Handfield, 1994; Monczka and Giunipero, 1984; Spekman, 1991) cite cost reduction a primary driver of offshoring. Also several MIS studies (Ang and Straub, 1998; Hancox and Hackney, 1999; McLellan, Marcolin and Beamish, 1995; Smith, Mitra, Narsimhan, 1998) recognize cost reduction as primary motive for offshoring, but since these studies are mostly focused on offshore outsourcing (external sourcing) they are mostly looking at choice between internal sourcing and external sourcing. The choice of cooperative sourcing is either not considered at all or is considered as part of either internal sourcing or external sourcing. Also, studies on global sourcing of products look at sourcing as a dichotomous choice between internal and external sourcing. MIS studies and studies on global sourcing of products do recognize a positive relationship between motive for cost reduction and use of offshoring. They (MIS studies and studies on global sourcing of products) also recognize cost reduction as a primary driver for offshoring.

Various surveys on offshoring (Offshoring Research Institute, 2005; Mann, 2003; Yourdon, 2004; Ventoro Consulting, 2005) have reported that cost reduction is one of the most important motivation / driver for offshoring of services. But none of these surveys,

indicate the preference for offshoring mode if the primary motivation of offshoring of services is cost reduction.

This study hypothesizes that even though cost reduction is a primary driver for the initiation of the process of offshoring, but by itself the motive of cost reduction is unable to predict the mode of offshoring, as firms could realize their cost savings objective by choosing either mode of operation. Various surveys (Offshoring Research Institute, 2005; Mann, 2003; Yourdon 2004; Ventoro Consulting, 2005) have reported that firms achieve cost savings from offshoring operations irrespective of the mode of offshoring. Also, other factors related to service characteristics and managerial concerns, would have greater influence on the mode of offshoring.

H5: Firm's motive to reduce the cost of offshoring will not influence the firm's mode of offshoring.

b) Reduce time to market

Improving time to market or reducing the amount of time required to launch a product has been reported by some offshoring surveys (Offshoring Research Institute, 2005; Ventoro Consulting, 2005) as an important driver for relocation of production of services. This motive is especially visible in high tech firms, that want to introduce new products simultaneously across the globe and as fast as possible, as these firms compete in highly dynamic and fast changing technical environment. Also, product development cycle and product life cycle are being compressed by the intense international competition and rapid technological changes (Goldberg, 1994; Womack et al., 1990).

Because of intense international competition, the old approach of introducing a new product in the home market and then to other markets is no longer valid. Global competitors these days are very savvy and are able to reverse engineer products almost instantaneously (Bozrath, 1998). According to a report by CNBC (in July 2007), Apple's iPhone was reverse engineered within 24 hours of its introduction. Hence these days most firms try to introduce products simultaneously in as many markets as possible.

Also, because of rapid technological changes and shorter product cycles, the firm may not have the luxury of time and resources to develop all the necessary components of the service in house and would use external source to source these services.

H6: The higher the firm's need to reduce the time in producing / performing the service, the greater the firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

c) Access Skills

Access to qualified professionals has been reported by 70% of the respondents, of Duke University CIBER/Archstone Consulting's 2005 survey, as an important driver of offshoring. This motive of accessing skills is not just limited to accessing labor, but also includes accessing other complimentary skills such as technology, marketing, and management expertise to enhance firm's competitive advantages. Apart from the motive to reduce cost, firms go overseas to acquire assets that enhance their existing capabilities and give them competitive advantage. And sometimes, firms are more focused on

maintaining or strengthening their long term competitive position than on short term cost savings and prefer higher control over foreign operations. (Dunning, 2002a; Hamel and Prahlad, 1985).

According to various studies (Hennart, 1988; 1991 and Stopford and Wells, 1972) shared control mode (cooperative sourcing) is an efficient method of combining the complementary assets of two partners. Since technological spillovers tend to remain local (Audretsch, 1998; 2000), firms interested in acquiring these skills would prefer to have a presence in those locations (Audretsch, 2000).

H7: The greater the firm's desire to access host country assets, the higher the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

d) Access Market

Entry into foreign markets is motivated by the desire to market goods and services to markets in that region (Dunning, 1993a). In an oligopolistic market, internalization may be a part of a defensive move, in reaction to overseas expansion of competing service firms (Sanchez-Peinado, Pla-Barber and Hébert, 2007). Hence a service firm is more likely to select a full-control mode as wholly owned subsidiaries enable firms to respond to competitors' actions more quickly than other modes (Erramilli and Rao 1990). Also, according to Root (1994), the new entrant may have to use sole ownership mode of operation, in order to compete effectively with the dominant firm(s) in a market.

According to Zaheer (2002), various factors, such as tariff barriers, the need to build relationships through face-to-face contact with customers, the need to develop market or customer knowledge, and/or the need for proximity in order to provide after-sales service, are drivers of physical presence in foreign markets. Under RBV, the strategic importance of a foreign market would influence the entry mode. Also, according to TCA, the factors related to marketing of the product /service such as the need to protect brand name, reputation, proprietary technology or product related trade secrets may make the firm prefer higher control mode (Sanchez-Peinado, Pla-Barber and Hébert, 2007)

Market seeking motive is not the primary motive in offshoring. Results of various surveys seem to support this view. Access to new markets was cited as a motive only by 25% of the respondents (Offshoring Research Institute, 2005). Other studies (Mann, 2003; Yourdon, 2004; Ventoro Consulting, 2005) have reported similar results. Even though access to markets may not be an important driver of offshoring, but for the reasons mentioned in the preceding paragraphs, increase in the desire to access a foreign market would result in an increase in the desire for a higher level of control over the foreign operations. Also, increase in the desire to access a foreign market may point to the attractiveness of the market, and/or strategic importance of the market. Under both these conditions firm's willingness to commit resources to the foreign market will increase.

H8: Increase in the firm's desire to access a foreign market would lead to increase in the firm's preference for an internal mode of offshoring over either a

cooperative or an external mode; and a preference for a cooperative mode over an external mode.

e) Host Country Incentives

Host country governments, in order to reduce unemployment and improve economic growth in their country, use incentives to attract foreign investments (Weigand, 1983). These incentives are usually in the form of tax breaks, subsidized loans, favorable contract terms, land and other resources at a very low price. Young, Hood and Wilson (1994) found that governments in most countries offer various kinds of incentives to attract foreign investors. According to Mudambi (1995; 1998), increased competition between governments increases the positive effect of attraction schemes on investment levels. Also according to Weigand (1983), foreign firms are eligible to receive these incentives only if they adopt a certain entry mode (which is usually a joint venture or sole venture).

H9: The greater the incentives from the host country government, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

3.2.2.4 Concerns

Firm's concerns over data security/privacy, intellectual property protection, host country political or economic uncertainty, cultural difference between host and home

country and lack of partners/ vendors in host country may also influence offshoring mode selection.

a) Data Security/ Privacy concerns

Online fraud is on the rise and firms are increasingly becoming concerned about the security and privacy of financial and other sensitive data. Data security and privacy concerns are one of the top concerns indicated by various surveys. Ventoro Consulting's, 2005 survey, which involved 5231 executives across Europe and North America, reported that 81% of the firms were concerned about security issues. Also, another survey conducted by Duke University CIBER/Archstone Consulting in March 2005, which involved more than 100 largest US firms, reported that 45% of the firms and 70% of service providers were concerned about data security and privacy.

Furthermore, a survey conducted by Information Week in June 2008, which involved 372 business technology professionals from 272 companies, also reported data security as number one disadvantage of business process offshoring (Information Week, 2008). A number of surveys have similarly reported managerial concerns over data security / privacy in offshoring of services.

This concern over data security / privacy would make firms reluctant to handover sensitive data to vendors or partners and hence firms would prefer to internalize the production / performance of the service. .

H10: The higher the firm's concern over data security/ privacy, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a

cooperative or an external mode; and a preference for a cooperative mode over an external mode.

b) Intellectual Property Protection

It is difficult to monitor and control the dissemination or misuse of proprietary knowledge (Agarwal and Ramaswami, 1992). For services, it is even more difficult to protect (patent, copyright, etc.) the proprietary knowledge as it is derived from intangible assets (Erramilli and Rao, 1993). With increase in uncertainty over protection of proprietary assets, the cost of contracting and /or a joint venture increases because of the increased risk of leakage or unwanted dissemination of proprietary assets (Williamson, 1996).

Even though services are protected by copyright laws, enforcing copyright laws in foreign countries may not always be possible as intellectual property laws are not uniform throughout the world; and in some countries intellectual property laws may not be enforced for products/services of foreign origin (Rosenbaum, 1995; Spector, 1995).

In the absence of laws/enforceability of laws regarding intellectual property firms would prefer to internalize sourcing of services in order to minimize threat of imitation by local vendors.

H11: The higher the firm's concern over the presence and enforceability of laws respecting intellectual property rights in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

c) Host Country Risk

Host country risk is “the uncertainty over the continuation of present economic and political conditions and government policies which are critical to the survival and profitability of a firm's operations in that country.” (Agarwal and Ramaswami, 1992:5). In other words host country risk firstly, decreases firms profitability either by changes in the macro economic environment such as currency fluctuations, inflation, price controls or other governmental interventions and secondly may make it difficult for firms to repatriate earnings and in extreme cases, the firms may also risk losing their assets because of expropriation by government (Root, 1987). In entry mode literature host country risk is also referred to as environmental uncertainty or external uncertainty.

According to Williamson (1979) in volatile or unstable environments, firms should avoid ownership and shift risk to outsiders, as this gives firms flexibility and minimizes risk. On similar lines, Anderson & Gatignon (1986) argue that under high environmental uncertainty, firms may be better off selecting non-equity, low-investment entry modes, as this avoids resource commitment and frees entrants to change partners or renegotiate contract terms and working arrangements relatively easily as circumstances develop and change. Several researchers (Gatignon and Anderson, 1988; Goodnow and Hansz, 1972; Mascarenhas, 1982) recommend the use of shared-control arrangements under high country risk. Also, firms can reduce the host country risk and incur lower transaction cost by utilizing lower ownership modes (Hennart, 1988; Hill et. al.,1990)

H12: Increase in the firm's perception of the host country risk will lead to increase in firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

d) Cultural Distance

Differences in language, work ethic, social structure, ideology and so on between the home country and the host country collectively encompass cultural distance (Goodnow, 1985). Cultural distance has a significant influence in failure rate of service industry subsidiaries abroad (Li and Guisinger, 1991), also cultural distance can create problem with quality control and feedback that may hurt a service firm's market performance (Kotabe et. al., 1998). Increase in cultural distance reduces preference for sole ownership (Ekeledo and Sivakumar, 1998; Kogut and Singh, 1988; Erramilli and Rao, 1993; Fladmoe-Lindquist and Jacque, 1995).

Johanson and Vahlne (1977) argue that more economic activity occurs between socio-culturally similar countries than those which are dissimilar. Socio-culturally similar countries share similar business practices, similar language, and comparable educational levels and cultural characteristics (Johanson and Vahlne, 1977; Kogut and Singh, 1988). This socio-cultural similarity reduces the cultural distance between the two countries. The lower the cultural distance, the lower is the cost involved in transferring proven business model from the home country to the host country and hence higher is the preference for sole venture. Root (1994), argues that cultural similarity between US and Canada is one of the major factors, for preference for sole venture by US firms when entering Canada.

On similar lines, researchers (Alpander, 1976; Davidson, 1980; Richman and Copen, 1972) argue that cultural distance increases the difficulty of transferring marketing, technology, human resources and home management techniques and values. Various studies (Agarwal, 1994; Gatignon and Anderson, 1988; Kogut and Singh, 1988; Stopford and Haberich, 1978; Erramilli and Rao, 1993) have found that increase in cultural distance leads to an increase in preference for joint venture, as according to Root (1983), a local partner can lessen the difficulty and cost associated with transferring firm specific knowledge from home country to the host country.

According to TCA increase in cultural distance (uncertainty) leads to decrease in desire for control, as firms retain flexibility and avoid high levels of ownership (Williamson, 1975). Also, Johanson and Vahlne (1977), argue that perceptions of significant cultural distance between the home country and the host country results in lower resource commitment. On similar lines, Gatignon and Anderson (1988) argue that propensity to integrate (internalize) decreases with increase in host country's socio-cultural distance from the US.

In addition, if the cultural distance between the home country and host country is high, the organization may not have managers / executives capable of managing operations in a culturally distant environment, so the organization would start off by using cooperative sourcing or external sourcing for global sourcing of services.

H13: The greater the firm's perception of the cultural distance between a firm's host country and home country the higher would be the likelihood of the firm using cooperative sourcing or external sourcing for global sourcing of services.

e) Lack of reliable partners/ vendors

High supplier competition decreases the potential for opportunistic behavior (Williamson, 1975), which reduces the transaction cost and hence increases likelihood of buying (externalizing) over making (internalizing). Number of suppliers influences intensity of competition and the bargaining power of buyers. Also, availability of alternate suppliers increases with increase in number of vendors providing the service (Porter 1990). Kotabe et. al. (1998) found that the extent of foreign sourcing increases with increase in availability of services from independent suppliers. According to (Contractor and Kundu, 1998b; Erramilli, Agarwal and Dev, 2002; Dunning, 1988) preference for management service contracts (non equity mode) in the host country increases with increase in qualified and trustworthy partners with complementary capabilities.

TCA refers to lack of partners / vendors as small numbers bargaining. Lack of competition between existing suppliers may results in opportunistic behavior by some of the existing suppliers. Transaction costs may be minimized through internalization of production, under conditions of limited supplier competition (Williamson, 1988). Various studies (Caves and Bradburd, 1988; Levy, 1985; McDonald, 1985; Pisano, 1990) have found support for internalization as a result of limited number of exchange partners.

Therefore, as the number of partners/ vendors providing the service (needed by the firm) increases, the firm would have more choice and would be less concerned about opportunistic behavior (by the partners/ vendors) and the firm would also have higher bargaining power, hence the firm would be more inclined to use outside partners/ vendors to procure that service. But when there is scarcity of reliable partners/ vendors in the host

country, the firm will have no choice but to internalize the offshoring operation or cooperate with a local vendor to produce / perform the service.

H14: The higher the firm's concern over lack of partners/ vendors providing the service in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

3.3 SUMMARY

This chapter discussed the effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services and corresponding hypotheses were developed. The hypotheses are summarized in Table 3.2.

The next chapter describes the research methodology used to test the research hypotheses.

Table 3.2 Summary of Hypotheses

Sr. No.	Hypothesis	Proposed sign /effect (+/-)*
	Capabilities	
1	H1: As firm size increases, firms would prefer an internal mode of offshoring over either a cooperative or an external mode.	Internal mode preferred
	Characteristics	
2	H2: The higher the strategic importance of the offshored service to the firm, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+

3	H3a: Increase in customization needs (asset specificity) for the service will not lead to firm using internal mode of offshoring.	Internal mode will not be preferred
	H3b: As the need for customization of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.	+
4	H4a: Increase in proprietary nature of technology used in production/performance of the service, will not result in increase in firm using internal mode of offshoring.	Internal mode will not be preferred
	H4b: As the proprietary nature of technology used in production/performance of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.	+
	Causes (Motives)	
5	H5: Firm's motive to reduce the cost of offshoring will not influence the firm's mode of offshoring.	No effect
6	H6: The higher the firm's need to reduce the time in producing / performing the service, the greater the firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.	-
7	H7: The greater the firm's desire to access host country assets, the higher the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+
8	H8: Increase in the firm's desire to access a foreign market would lead to increase in the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+
9	H9: The greater the incentives from the host country government, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+

	Concerns	
10	H10: The higher the firm's concern over data security/ privacy, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+
11	H11: The higher the firm's concern over the presence and enforceability of laws respecting intellectual property rights in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+
12	H12: Increase in the firm's perception of the host country risk will lead to increase in firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.	-
13	H13: The greater the firm's perception of the cultural distance between a firm's host country and home country the higher would be the likelihood of the firm using cooperative sourcing or external sourcing for global sourcing of services.	-
14	H14: The higher the firm's concern over lack of partners/ vendors providing the service in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+

* + refers to the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

- refers to the firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 INTRODUCTION

The previous chapter discussed the 4Cs framework and developed hypotheses related to it. This chapter describes the research methods used to test these hypotheses. Research design, sample selection procedure, variables and their operational measures, data collection process and statistical analysis techniques used for the study are also discussed in this chapter.

4.2 RESEARCH DESIGN

Data based on managerial perceptions is needed to test the hypothesis discussed in the previous chapter. This kind of data is generally unpublished and can be obtained only by direct questioning of the managers involved in the decision making process. Also, online surveys are very efficient and cost effective means of gathering perceptual data. Hence an online survey was used to gather data from top executives (CEO, CIO, CFO, President, Vice President and divisional or business unit heads) involved in the decision making process.

According to Dillman (2000), online surveys are more efficient over conventional paper and pencil questionnaires as they eliminate the need for data entry, can be made dynamic and interactive and the respondent would only see the questions that are relevant to him or her. Also, online surveys have the added benefit of being accessible from anywhere as opposed to a physical paper and pencil questionnaire. This accessibility

feature of online survey is very important as this survey was sent to top executives and most of the top executives are not at their desk most of the time. One of the disadvantages of an online survey is that it requires respondents to have at least basic computer skills and access to the Internet, but this may not be a big concern as most of the top executives of large US firms have basic computer skills and also have access to the Internet.

Most of the studies involving mode of sourcing have either used online surveys or paper and pencil surveys. Several studies (Van de Looij-Jansen and Jan de Wilde, 2008; Mi Kyung, 2005) have found that online surveys are as effective as paper and pencil surveys.

Emails were sent to 8185 respondents with a link to the online survey. The emails were sent twice and online survey was the most efficient, in terms of both cost as well as time, method of administering the survey. Guidelines suggested by Dillman (2000) were used to create the survey and also to collect data through the survey. Emails sent were CAN-SPAM compliant (for details regarding CAN-SPAM compliance see <http://www.ftc.gov/bcp/online/pubs/buspubs/canspam.shtm>) in order to differentiate it from spam or junk mail (unsolicited email) and also to assure users that, it is safe to open the email (i.e. the email is free of malicious material that may harm their computer).

4.2.1 Unit of Analysis

Previous studies (Kotabe et al., 1998; Murray and Kotabe, 1999) in sourcing of services have either used the entire firm, subsidiary or a business unit as the unit of analysis. The researcher feels that a more appropriate unit of analysis would be just one

service function offshored by the firm, as different service functions within the same firm may be influenced by different service characteristic, motives, concerns and /or factors.

Also, the drawback of using the entire firm as unit of analysis is that the person responding to the survey may not have the complete knowledge of the different offshoring activities of the entire firm. Another drawback is that the same firm may be using multiple modes of offshoring to offshore different functions along the value chain, which may not be accurately reflected by gathering aggregate firm level data.

4.2.2 Sample

According to US Census Bureau, in 2004 there were 17,047 firms in the US employing more than 500 employees (large firms). Various attempts were made to get a breakdown of this number (17,047) by different industries. Even US Census Bureau's breakdown of the total number of firms with more than 500 employees (by different industries) did not add up to 17,047 (it was significantly higher, since many firms are counted multiple times, as they are in multiple industries). A breakdown by different industries would have helped to create a sample reflecting the population, but at the end, a convenience sample was used for this survey. Also, it is very difficult and time consuming to collect email addresses of top executives of each and every firm.

Convenience sampling has been used by other studies (Erramilli and Rao, 1990; 1993) to test entry mode choice of service firms. Also, according to Hunt (1991), non probability sampling technique (for ex. convenience sampling) can be used to test a theory. Since this is an exploratory study, trying to test applicability of TCA and RBV theories to mode of offshoring, convenience sampling should suffice.

Dun & Bradstreet's Million Dollar Database, Hoover's (a Dun & Bradstreet company) and various company websites were used to collect email addresses of top executives of various firms. The researcher was able to collect 8,185 email addresses.

Email addresses of top executives from various industries were used to increase the generalizability of the study. Top executives in a firm are in a position to have the information regarding firm's offshoring activities and the chances of them (top executives) involved in the decision making process are very high. Also, various studies (Agarwal and Ramaswami, 1992; Erramilli and Rao, 1990; 1993; Kotabe et al., 1998; Murray and Kotabe, 1999) have obtained similar kind of information (information related to entry mode choice of the firm) from top executives.

4.3 OPERATIONAL MEASURES

This study uses single-item measures as opposed to multi-item measures used by previous entry mode studies. This section discusses the reasons for using single-item measures, compares single-item and multi-item measures and discusses the applicability of single-item measures to this study.

4.3.1 Background

Single-item measures were used to measure all the variables in this study. Single-item measure is using just one item to measure a variable as opposed to using multiple items to measure a variable. Using multiple items to measure a variable is a standard practice in most of the research fields, but this study used single-item measure. One of the reason for using single-item measure is the low response rates, surveys involving

multiple items are experiencing and also various studies (Jordan and Turner, 2008; Kwon and Ko, 2006; Kwon and Trail, 2005; Nagy, 2002; Wanous and Hudy, 2001; Wanous and Reichers, 1996; Wanous , Reicher and Hudy,1997) have proved single items to be suitable for collecting self reported data..

4.3.2 Low survey response rate

A study conducted by doctoral student Lane in 2007, on outsourcing received an initial response rate of 2% and after reminders the rate improved to 3%. The low response rate is not a new phenomenon. Poppo and Zenger (1998) study reported a response rate of 6% and Brouthers and Xu (1992) have had similar experience (response rate of 6.5%). Studies after studies are reporting lower and lower response rates; as a result many researchers are shying away from using surveys.

According to Lane (2007), even professional survey companies have seen a significant drop in response rates. Professional survey companies used to see a response of 30 % to 40% a few years ago and now are seeing 1% to 3% response rates (Lane, 2007).

One of the reasons for the significant drop in response rate is increase in accessibility to potential respondents (Lane, 2007). The respondents are bombarded with all kinds of emails and have taken measures to filter junk mail, ignoring and rejecting unwanted emails (Lane, 2007). According to Poppo and Zenger (1998), sourcing issues have received lot of attention and most of the managers receive 3 – 5 surveys per week and this makes it difficult to achieve higher response rates.

Also, threat of virus or malware (programs negatively affecting computer functions) has made people reluctant to open emails from strangers.

Moreover, during the pilot testing of this study, the potential respondents gave various reasons for not filling academic surveys: as the surveys being too long, time consuming, monotonous (boring) and repeating similar items (condescending or insulting intelligence).

This study is not trying to prove that single-item measures are better than multiple item measures, but looking at the low response rates academic surveys are getting, it is important that researchers adapt to this change by changing the way they do research. Researchers need to get creative by using different methods of collecting self-reported data (Gardner, Cummings, Dunham and Pierce, 1998).

4.3.3 Single-item measures vs. multi-item measures

Compared with multi-item measures use of single-item measures in a survey provides numerous benefits such as: making the survey easier to administer as fewer number of items are involved in the survey (Fayers and Machin, 2000); less burdensome to the respondents (Cunny and Perri, 1991); less monotonous and less time-consuming for the respondents (Gardner et. al., 1998); reduces research costs as the cost associated with administering the survey is directly related to the number of items in the survey (Wanous and Reichers, 1996); results in shorter survey (Nagy, 2002; Pomery, Clark and Phillip, 2002); increases face validity as the item is perceived by the respondent as a direct measure of the construct of interest (Nagy, 2002); global concepts may be measured more accurately and increase construct validity (Jordan and Turner, 2008) and

increases response rates as the questionnaire is less time-consuming for respondents (Bean and Roszkowski, 1995; Gradner et al., 1998). Also de Boer, van Lanschot, Stalmeier, van Sandick, Hulscher, de Haes, and Sprangers, (2004) argue that simplicity and ease of use of single-item surveys results in high rate of completed responses and operational efficiency in data entry and data analysis.

Drolet and Morrision (2001) argue that multi-item measures place a heavy burden on respondents and pressure on researchers to restrict survey length. Moreover, this further reduces the number of constructs that could be investigated (Drolet and Morrision, 2001). Also, these authors present evidence that additional items (second, third and so on) contribute little to the information obtained from the first item and additional items aggravate respondent behavior and undermine respondent reliability. They further argue that most of the respondents do not read lengthy surveys in their entirety; they read the first or the second item and assume that the subsequent items would be similar. Peter (1979) warns researchers not to use too many items. Drolet and Morrision conclude that “less is more” (2001: 202) and question the need for multiple-item measures in service research.

An additional benefit provided by single-item measures over multi-item measures is the increase in generalizability of the measure used (Jordan and Turner, 2008). For example: Proprietary technology in IB and strategic management field has been measured by various scholars (Agarwal and Ramaswami, 1992; Gomes-Casseres, 1989; Goodnow, 1985; Grant, 1991; Grosse, 1996; Porter, 1980, 1985; Storey and Easingwood, 1996; Wernerfelt, 1989; Williams, 1992) using 21 different items: unique patents/ number of patents; trademark; trade secret; logistic and distribution technology; frequency of new

product development; quality of the product; product innovation; brand name: research and development technology; product technology; process technology; managerial technology; unique benefits; product difficulty for competition to copy; improvement over existing products: low cost production and product differentiation and focus. This list was derived from Ekledo (2000) and is by no means exhaustive. As we can see twenty one items have been used by various researchers to measure proprietary technology, with no consensus among researchers as to which is a better measure of proprietary technology.

Also, the suitability of some of the items used to measure proprietary technology is suspect. For example: the item unique patents/ number of patents has been widely used in studies as one of the items measuring proprietary technology. But unique patents/ number of patents may be a good measure of proprietary technology for pharmaceutical or drug industry, where patents provide a good protection against competitors (copying or otherwise misusing information). Because, in pharmaceutical or drug industry most of the times the chemical composition of the drug is unique and competitors cannot produce a drug with different chemical composition, but similar benefits. Whereas in high tech industries (such as computers, electronics), patents cannot provide an effective protection against competitors (copying or otherwise misusing information) as the process of filing for patents requires disclosing lot of information and some of that information might be used by competitors to come up alternative ways of creating similar products.

As is clear from the above discussion, 'unique patents/ number of patents' a popular measure of proprietary technology is not suitable for all industries, but it still is widely used. The suitability of this item is even less for services than for products.

On similar lines Aharoni (1966) and Goodnow (1985) argue that managers often use crude and unsophisticated methods when making decisions such as entry mode in international markets. Also, Buckley and Chapman (1997) argue that managers do not look at individual items, but look at the big picture and managerial decisions are based on perceptions of transaction costs and not on computation of fully recognized transaction costs. Buckley and Chapman further argue that different managers perceive, weigh and judge these (transaction) costs differently. This study supports their views and argues that since managerial perceptions are captured better by single-item measures, this study has very high practical value for managers.

Hence the researcher feels that for measuring variables such as proprietary technology instead of using multiple items (which may or may not be suitable), the research would be better served by asking a direct question to the respondents (such as please indicate proprietary nature of technology used in production of product /services (on a scale of 1 to 5, 1 being low i.e. standard technology (not proprietary) and 5 being high (very proprietary))

Compared to multiple-item measures, single-item measures also reduce common methods variance Jordan and Turner (2008). Common method variance is the variance that is attributed to the measurement method rather than the constructs of interest and may cause systematic measurement error and bias the estimates of the true relationship among theoretical constructs (ZenCaroline, 20007).

According to Podsakoff & Organ (1986), in a self report survey, it is a standard practice to create scales, which are developed by summing multiple Likert-type items, with acceptable coefficient alphas. The resulting statistical relationship could be a result

of common method variance (Gardner et al., 1998). Also, according to Williams, Cote and Buckley (1989), measuring different but related constructs with items with similar response formats may cause a certain degree of spurious correlation and respondents may provide similar responses in order to be consistent. This (consistent responses by respondents) results in common methods bias. According to Jordan and Turner (2008), common method bias is the result of using similar response formats for measuring two different constructs which results in inflated correlations between these constructs. This may also result in inflated coefficient alpha for multiple items within the same construct (Rossiter, 2002). Also, according to Jordan and Turner (2008), even with use of similar response formats for single-item and multiple-item measures, the likelihood of common method variance is reduced, as the use of single items can reduce the total number of items with similar contents.

Moreover, single-item measures are commonly used in human resource management, industrial psychology, and organizational behavior research (Jordan and Turner, 2008) and it is about time we test the usefulness of single-item measures for IB and management studies.

4.3.4 Why are multiple item measures preferred over single-item measures?

Researchers believe that “more is better” and use multiple item scales to measure constructs (Wanous et al., 1997). According to Gardner et al. (1998) researchers have generally relied on scale measures (comprised of multiple items) to measure a particular construct. Per Nunnally, “other things being equal, a long test is a good test” (1978:243). According to Gardner et al.,

“This recommendation (by Nunnally (1978)) is ultimately based on the domain-sampling model of measurement error, which assumes that any given test is composed of a random sample of items from a hypothetical domain of all items that measure the construct of interest. But self-report measures are not actually constructed from a random sample of items from any domain. Instead, researchers almost always create items based directly on their explication of the construct under study (Hinkin, 1995). Inevitably, some items will be better than others.

Given these psychometric fundamentals, it is possible that one "good" item can be better than many "bad" items when evaluated on criteria of reliability and validity. Yet, most researchers continue to create self-report measures that reflect the current measurement norm in self-report research— multiple, Likert-type items that, after summation, produce scores with an acceptable coefficient alpha (Podsakoff & Organ, 1986).” (1998: 899)

Also, according to Loo (2002) multiple item measures are preferred by researchers because of assumed validity and reliability benefits. Multiple item measures are generally considered more reliable and measurement reliability is frequently treated by those involved with the review and publication of scholarly work as a necessary condition for publication (Wanous and Hudy, 2001). Both these concerns of reliability and validity have been addressed by various studies (Harman, 1967; Wanous and Reichers, 1996; Wanous, Reichers and Hudy, 1997 and Wanous and Hudy, 2001) and these studies have demonstrated that for constructs that are not complex, one-dimensional and narrow in scope single-item measures could be used.

According to (Wanous and Reichers, 1996; Wanous et. al., 1997 and Wanous and Hudy, 2001), researchers believe that reliability of single-item measure cannot be estimated, and if it is estimated, then it would be too low to be acceptable. Reliability of single-item measures can be estimated by using either correction for attenuation formula (Wanous and Reichers, 1996; Wanous et. al., 1997 and Wanous and Hudy, 2001) or factor analysis (Harman, 1967; Wanous and Hudy, 2001). Various studies (Wanous and

Reichers, 1996; Wanous et al., 1997 and Wanous and Hudy, 2001) have proved that single-item measures are as reliable as multi-item measures.

Single-item measures provide better face validity over multiple-item measures, where the item is a direct measure of the construct (Nagy, 2002). Increased face validity may improve response rate as respondents may dislike the repetitious nature of a multiple-item questionnaire (Wanous et al., 1997) and they may not understand the significance / relevance of the survey questions (used in a multiple-item construct measure) (Gardner et al., 1998).

4.3.5 When are single-item measures appropriate?

Per Wanous and Reicher (1996) and Wanous et. al. (1997), single-item measures can be divided into two categories: (a) items measuring self-reported facts or behavioral or observable attributes (e.g., age, education, number of years of previous experience in a certain field) and (b) items measuring psychological constructs or cognitive or affective attributes of a construct (e.g., aspects of personality or job attitudes). The first category (simple construct) is commonly measured using single-item measures and this practice is widely accepted, whereas second category (complex construct) is considered unsuitable for measurement using single-item measures (Wanous and Reicher, 1996). The controversy of using single-item measure is really for intermediate constructs (in between the simple and complex constructs), such as job satisfaction (Wanous and Reicher, 1996). But, according to Sackett and Larson (1990) for constructs that are sufficiently narrow or unambiguous to the respondent, single-item measures may be used. On similar lines, Rossiter (2002) argues that if the object is singular and ‘easily’ and ‘uniformly imagined’,

then single-item measures are sufficient. The researcher believes that the variables used in this study satisfy these conditions and can be measured with single-item measures.

Use of single-item measures in IB and management field is not really uncommon; most of the studies (in IB and management field) have a mix of single-item and multi-item scales, but none of these studies have discussed the reliability of single-item measures. This is the first study in IB and management field to be based entirely on single-item measures and to discuss the reliability of single-item measures. Also, out of the 14 variables used in this study 10 variables have already been used as single-item measures in previous studies. Only four variables (Proprietary Technology, Host Country Incentives, Cultural Distance and Host Country Risk) are not used as single-item measures in IB and management field. Applicability of single-item measures to these four variables is discussed under their respective discussion for operationalization of variables.

Per the preceding discussion single-item measures are appropriate for this study, and therefore the next section uses single-item measures to develop the survey instrument.

4.4 SURVEY INSTRUMENT DEVELOPMENT

This section discusses operationalization of the dependent variable and also the independent variables from the 4Cs framework.

4.4.1 Operationalization of variables

This section discusses operationalization of dependent and independent variables. Wherever feasible, existing measures were used. Also, measures were constructed after a thorough review of the literature. Except for demographic variables, all other variables were measured using 5-point Likert scale (in line with previous research).

4.4.1.2 Dependent Variable - Mode of Offshoring

Mode of Offshoring has not been used as a dependent variable in IB and management literature because of lack of studies in IB and management field related to offshoring of services, but mode of offshoring is essentially a method of organizing transaction and could be considered similar to entry mode choice (which is a well researched topic)

Previous studies (Esther Sanchez-Peinado et al., 2007; Brouthers and Brouthers 2003; Brouthers, 2002; Murray and Kotabe, 1999; Kwon and Konopa, 1993; Erramilli and Rao, 1993;) conceptualized mode of entry as a dichotomous variable. Also a practical reason for using this variable as a dichotomous variable, is that the likelihood of the determinants registering significant increases with decrease in the number of possible values for the dependent variable. Pan and Tse (2000) reached a similar conclusion as far as the number of determinants registering significant is concerned. Erramilli and Rao (1990) came up with nine sourcing modes and arranged them in an ordinal scale based on involvement (1=lowest, 9=highest). In a later study Erramilli and Rao (1993) collapsed the entry modes into two categories, shared controlled mode and full control mode.

Meyer (2001) used four values for mode of entry (trade, contractual arrangement, joint ventures and wholly owned subsidiary). Ekledo and Sivkumar (1998) also used four values for entry modes (franchising/ licensing, exporting, joint ventures and wholly owned operations). Whereas, Lacity and Willcocks (1998) came up with three sourcing modes; total insourcing, total outsourcing and mixed sourcing. On similar lines, the researcher believes that using just two choices for the entry mode (internal and external), leaves out an extremely important mode of entry (cooperative sourcing) and hence in this study mode of offshoring is operationalized as an ordinal variable with three possible values:

Mode of Offshoring = 1 External sourcing or externalization - The source providing the service is located both outside the organization's boundary and outside the buyer's country.

= 2 Cooperative sourcing - The source providing the service is located outside the buyer's country, but the buyer and supplier either share equity or resources or are bound in a contractual relationship or licensing agreement.

= 3 Internal sourcing or internalization -The source providing the service is located within the organization's boundary, but located outside the buyer's country

Question 2.1 of the questionnaire was used to measure Mode of Offshoring. Respondents (Managers) were asked to identify the mode of offshoring for a service that they have offshored.

Table 4.1 provides details about the dependent variables and related survey question.

Table 4.1: Variable descriptions and related survey question - Dependent Variables

Sr. No.	Variable	Variable Description	Variable Type	Possible Values	Survey Page #	Survey Question
1	Offshoring Mode	Measures mode of sourcing based on degree of control (from high to low)	Nominal / Ordinal	3 – Internal (foreign subsidiary/ division) 2 – Cooperative (partnership (joint venture, alliance) 1 – External (third party vendor)	3	2.1) Offshored Service Sourcing Mode – <i>Offshored Service</i> is currently being produced / performed overseas (outside United States (US)). (Select only one) <input type="checkbox"/> by your firm’s foreign <u>subsidiary / division</u> <input type="checkbox"/> in <u>partnership (joint venture, alliance)</u> with a foreign vendor or US vendor's foreign subsidiary / division <input type="checkbox"/> by an <u>independent third party</u> foreign vendor or US vendor's foreign subsidiary / division
2	Internal Only	Modified version of the variable Offshoring Mode	Nominal / Ordinal	1 - Internal 0 – Otherwise (could be either Cooperative or External)		N/A
3	External Only	Modified version of the variable Offshoring Mode	Nominal / Ordinal	1 - External 0 – Otherwise (could be either Internal or Cooperative)		N/A

4.4.1.3 Independent Variables

This section discusses operationalization of the independent variables from the 4Cs (Capability, Characteristics, Cause and Concern) framework.

4.4.1.3.1 Capabilities

Capabilities refer to firm capabilities. Firm's resources and assets provide firm capabilities. As discussed in the previous chapter section 3.2.2.1 firm size is used to measure firm capability.

a) Firm Size

Various measures have been used by researchers for firm size such as sales volume (Esther Sanchez-Peinado et al., 2007; Agarwal and Ramaswami, 1992), total assets (Kogut and Singh 1988), three-item scale (global sales, U.S. and worldwide employment) (Aulakh and Kotabe, 1997) and number of employees (Brouthers, 2002; Erramilli and Rao, 1993; Gatignon and Anderson, 1988). Because of inter-country differences in accounting standards, number of employees makes more sense as a measure of firm size than other measures of firm size as the other measures may not be consistent across different countries (Brouthers and Nakos, 2004).

Hence total number of employees worldwide was used as a measure of firm size. Question number 1.2 was used to collect information regarding firm size.

Table 4.2 provides details about the independent variable firm size and related survey question.

Table 4.2: Variable descriptions and related survey question - Independent Variable Firm Size

Sr. No.	Variable	Variable Description	Variable Type	Possible Values	Survey Page #	Survey Question
1	Employees (Firm Size)	Total number of employees worldwide (entire firm)	Ordinal	Categories listed under Survey question column (1 through 6)	2	<p>1.2) Total number of employees worldwide (approximately)</p> <p><input type="checkbox"/> 501 - 1,000</p> <p><input type="checkbox"/> 1,001 - 5,000</p> <p><input type="checkbox"/> 5,001 - 10,000</p> <p><input type="checkbox"/> 10,001 - 50,000</p> <p><input type="checkbox"/> 50,001 - 100,000</p> <p><input type="checkbox"/> over 100,000</p> <p><input type="checkbox"/> Don't Know / Not Applicable</p>

4.4.1.3.2 Characteristics

Characteristics refer to the characteristics of the service that is offshored. In this study service characteristics were comprised of strategic importance of the service to the firm, need for customization of the service and proprietary nature of technology used to produce / perform the service.

In the questionnaire “*Offshored Service*” refers to the service that is produced /performed overseas.

Table 4.3 provides details about the independent variables related to characteristics and related survey questions.

a) Strategic importance of the offshored service

Strategic importance of the offshored service has not been used as a variable in IB and management literature because of lack of studies in IB and management field related to offshoring, but a somewhat similar study by Murray and Kotabe, (1999) divided services into core and supplementary services.

The researcher believes that strategic importance of the offshored service to the firm is a straight forward variable trying to understand how important the service is to the firm and hence could be measured using a single-item measure.

Question 2.2) A) of the questionnaire was used to measure Strategic Importance of the *Offshored Service*. Respondents (Managers) were asked to rate the Strategic Importance of the *Offshored Service* on a 5-point Likert scale.

Table 4.3: Variable descriptions and related survey questions - Independent Variables related to Service Characteristics

Sr. No.	Variable	Variable Description	Variable Type	Possible Values	Survey Page #	Survey Question
1	Strategic Importance	Strategic importance of the <i>Offshored Service</i>	Ordinal	5 point Likert Scale (1 – high...5 - low)	3	A) <u>Strategic importance</u> of the <i>Offshored Service</i> to your firm (1- Very Important... 5- Not at all important)_____
2	Customization	Level of customization required in producing/perfor ming the <i>Offshored Service</i>	Ordinal	1 - 5	3	C) <u>Level of customization</u> required in producing/performing the <i>Offshored Service</i> (1- High customization5 - standard (no customization))_____
3	StratXCust	Interaction term involving Strategic Importance and Customization	Ordinal	1 - 25	N/A	N/A
4	Proprietary Technology	Proprietary nature of technology used in producing/perfor ming the <i>Offshored Service</i>	Ordinal	1 - 5	3	G) <u>Proprietary nature of technology</u> used in producing/performing the <i>Offshored Service</i> (1- Very proprietary ... 5- Not at all proprietary (Off the shelf technology))_____

5	StratXProp	Interaction term involving Strategic Importance and Proprietary Technology	Ordinal	1 - 25	N/A	N/A
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b) Customization

Customization of the offshored service has not been used as a variable in IB and management literature because of lack of studies in IB and management field related to offshoring, but similar variables related to the asset-specificity of the service have been used by Erramili and Rao (1993). Erramili and Rao used customization as an item of asset specificity scale which was comprised of 3 items; professional skills, specialized know-how and customization, all measured on a 5-point Likert scale. Murray et. al. (1995) measured asset specificity as a single-item measure using a 6-point Likert scale.

This variable measures the level of customization required (by the consumer) in producing/performing the offshored service and the researcher believes is a straight forward measure, also this variable has been measured by Murray et. al. (1995) using a single-item measure. Hence it would be appropriate to measure this variable using single-item measure.

Question 2.2) C) of the questionnaire was used to measure the Level of customization required (by the consumer) in producing/performing the Offshored Service. Respondents (Managers) were asked to rate the Level of customization of the *Offshored Service* on a 5-point Likert scale.

c) Proprietary Technology

Researchers (Agarwal and Ramaswami, 1992; Murray and Kotabe, 1990; Murray et al., 1995; Porter, 1980, 1985) have used operational measures related to either product technology, process technology and / or managerial technology as measures of proprietary technology.

Proprietary technology in IB and strategic management field has been measured by various scholars (Wernerfelt, 1989; Grosse, 1996; Gomes-Casseres, 1989; Agarwal and Ramaswami, 1992; Storey and Easingwood, 1996; Williams, 1992; Grant, 1991; Goodnow, 1985; Porter, 1980, 1985) using 21 different items: unique patents/ number of patents; trademark; trade secret; logistic and distribution technology; frequency of new product development; quality of the product; product innovation; brand name; research and development technology; product technology; process technology; managerial technology; unique benefits; product difficulty for competition to copy; improvement over existing products; low cost production and product differentiation and focus. This list was derived from Ekledo (2000) and is by no means exhaustive. As we can see twenty one items have been used by various researchers to measure proprietary technology, with no consensus between researchers as to which is a better measure of proprietary technology.

As explained earlier (under section ‘4.3.3 Single-item measures vs. multi-item measures’), this study uses a single-item measure based on managerial perception to measure proprietary technology.

Question 2.2) G) of the questionnaire was used to measure the Proprietary nature of technology used in producing/performing the Offshored Service. Respondents (Managers) were asked to rate the proprietary nature of technology used for production / performance of the *Offshored Service* on a 5-point Likert scale.

4.4.1.3.2 Causes (Motives)

In this study under causes (motives) following variables were considered: cost reduction, reduce time to market, access skills, access markets and host country incentives.

Table 4.4 provides details about the independent variables related to causes (motives) and related survey questions.

a) Cost reduction

Various entry mode studies have divided cost into several components such as production cost, start up cost and transaction cost. But this study is interested in overall (or total) cost, hence a single-item measure is used. Apte, Sobol, Hanaoka, Shimada, Saarinen, Salmela and Vepsalainen (1997) and Sobol and Apte (1995) also used a single-item measure to measure cost reduction motive, but used a nine point Likert scale.

Question 3.1) of the questionnaire was used to measure the cost reduction motive for offshoring. Respondents (Managers) were asked to rate the motivation to reduce cost on a 5-point Likert scale.

Table 4.4: Variable descriptions and related survey questions - Independent Variables related to Causes (Motives)

Sr. No	Variable	Variable Description	Variable Type	Possible Values	Survey Page #	Survey Question
1	Reduce Cost	Reduce Cost	Ordinal	5 point Likert Scale (1 – Very important ...5- Not at all important)	4	3.1) Please rate the reasons / motives for offshoring (1-Very important..... 5- Not at all important) ___ Cost reduction
2	Reduce Time	Reduce time to market	Ordinal	1 - 5	4	___ <u>Reduce time to market</u> (Decrease time required to produce / perform a service activity by simultaneously producing / performing the service at both the US and foreign location)
3	Access Skills	Access Host Country's skilled labor / complimentary skills	Ordinal	1 - 5	4	___ Access Host Country's <u>skilled labor / complimentary skills</u>
4	Access Market	Access new markets	Ordinal	1 - 5	4	___ Access <u>new markets</u>
5	Host Country Incentives	Incentives from host country	Ordinal	1 - 5	4	___ <u>Incentives</u> from host country

b) Reduce time to market

Apte et al. (1997) and Sobol and Apte (1995) used a single-item measure to measure motive to reduce time to develop software and used a nine point Likert scale. On similar lines, this study uses a single-item to measure the motive to reduce time to market, but uses a five point Likert scale.

Question 3.1) of the questionnaire was used to measure motive to reduce time to market for offshoring. Respondents (Managers) were asked to rate the motivation to reduce time to market on a 5-point Likert scale.

c) Access Skills

Apte et al. (1997) and Sobol and Apte (1995) used a single-item measure to measure motive to access skills and used a nine point Likert scale, whereas Sanchez-Peinado, et al. (2007) used a single-item to measure motive to access skills, and used a five point Likert scale. On similar lines, this study uses a single-item to measure to measure motive to access skills and uses a five point Likert scale.

Question 3.1) of the questionnaire was used to measure motive to access host country's skilled labor / complementary skills. Respondents (Managers) were asked to rate the motivation to access skills on a 5-point Likert scale.

d) Access Market

Erramilli (1990) used a single-item measure to measure motive to access market, although he used it as a dichotomous variable (choice between client-following or

market-seeking). This study uses a single-item to measure to measure motive to access market and uses a 5-point Likert scale.

Question 3.1) of the questionnaire was used to measure motive to access market. Respondents (Managers) were asked to rate the motivation to access market on a 5-point Likert scale.

e) Host Country Incentives

Host country incentives could be in the form of tax breaks, subsidized loans, favorable contract terms, land and other resources at a very low price. This is by no means an exhaustive list of host country incentives. A researcher would need a fairly long list of items to measure this variable and still might miss something. Hence the researcher believes that a single-item to measure would be more appropriate to measure this variable.

Question 3.1) of the questionnaire was used to measure motive to take advantage of host country incentives. Respondents (Managers) were asked to rate the motivation to take advantage of host country incentives on a 5-point Likert scale.

4.4.1.3.4 Concerns

Under concern's category the following variables were considered: data security/privacy, intellectual property protection, host country risk, cultural difference between host and home country and lack of partners/ vendors in the host country.

Table 4.5 provides details about the independent variables related to concerns and related survey questions.

a) Data Security/ Privacy concerns

Data security / privacy concerns has not been used as a dependent variable in IB and management literature because of lack of studies in IB and management field related to offshoring, but the researcher believes that concern over data security / privacy is a straight forward variable trying to understand managerial concern over security / privacy of data in the host country and hence could be measured using a single-item measure.

Question 4.1) of the questionnaire was used to measure the manager's concern over security / privacy of data in the host country. Respondents (Managers) were asked to rate their concern over security / privacy of data in the host country on a 5-point Likert scale.

Table 4.5: Variable descriptions and related survey questions - Independent Variables related to Concerns

Sr. No.	Variable	Variable Description	Variable Type	Possible Values	Survey Page #	Survey Question
1	Data Security / Privacy	Security / Privacy of data	Ordinal	5 point Likert Scale (1 – Very concerned ...5- Not at all concerned)	5	4.1) Please rate the reasons for being cautious about offshoring (1- Very concerned 5- Not at all concerned) ____ <u>Security / Privacy</u> of data
2	Intellectual Property Protection	Intellectual property protection	Ordinal	1 - 5	5	____ <u>Host country</u> laws regarding <u>intellectual property protection</u>
3	Host Country Uncertainty	Uncertainty in Host Country	Ordinal	1 - 5	5	____ <u>Uncertainty</u> (over political stability, macro economic environment) in <i>Host Country</i>
4	Cultural Distance	Cultural distance between host country and home country	Ordinal	1 - 5	5	____ <u>Cultural distance</u> (differences in language, work ethic, social structure, ideology and so on between the home country (in this case US) and <i>Host Country</i>)
5	Lack Of Partners / Vendors	Lack of reliable partners / vendors in Host Country	Ordinal	1 - 5	5	____ <u>Lack of reliable partners / vendors</u> in Host Country

b) Intellectual Property Protection

Delios and Beamish (1999) used this variable, but used secondary data (World Competitiveness Report – the data reported by this report are based on hard data (country level data) and survey data (managerial perceptions)).

The researcher believes that concern over intellectual property protection is a straight forward variable trying to understand managerial concern over intellectual property protection in the host country and hence could be measured using a single-item measure.

Question 4.1) of the questionnaire was used to measure the manager's concern over intellectual property protection in the host country. Respondents (Managers) were asked to rate their concern over intellectual property protection in the host country on a 5-point Likert scale.

c) Host Country Risk

Entry mode studies have used this variable as a scale comprised of various factors such as economic risk and political risk. But the researcher feels that the manager's perception of the host country would be influenced by variety of factors, such as his own experience with the host country, his own cultural background and his willingness to take risk, and no scale would be able to capture all these dimensions. Hence the researcher believes that a single-item to measure would be more appropriate to measure this variable.

Question 4.1) of the questionnaire was used to measure the manager's concern over the host country risk. Respondents (Managers) were asked to rate their concern over the host country risk on a 5-point Likert scale.

d) Cultural Distance

Various studies (Erramilli and Rao, 1993; Goodnow, 1985; Hofstede, 1983; Kogut and Singh, 1988) have used Hofstede's cultural index to measure cultural distance. But the researcher feels that the manager's perception of the cultural distance between the home country and the host country, would be influenced by variety of factors (not limited to Hofstede's cultural measures), such as his own experience with the host country, his own cultural background and his willingness to take risk. Manager's perception of the cultural distance would ultimately supercede a measure such as Hostede's cultural index. On similar lines Buckley and Chapman (1997) argue that different managers perceive, weigh and judge things differently and it is reflected in the differences in the firm structures.

Cultural distance could be measured by making a list of all the variables affecting managerial perceptions of the cultural distance. A researcher would need a fairly long list of items to measure this variable and still might miss something. Hence the researcher believes that a single-item to measure would be more appropriate to measure this variable.

Question 4.1) of the questionnaire was used to measure the manager's concern over cultural distance between the home country and the host country. Respondents

(Managers) were asked to rate their concern over the cultural distance between the home country and the host country on a 5-point Likert scale.

e) Lack of reliable partners/ vendors

Kotabe et. al., (1998) used this variable as part of an item in a scale, this item was measured using 5-point Likert scale. The researcher believes that this is a straight forward variable and single-item is sufficient to capture this variable.

Question 4.1) of the questionnaire was used to measure the manager's concern over the lack of reliable partners/ vendors in the host country. Respondents (Managers) were asked to rate their concern over the lack of reliable partners/ vendors in the host country on a 5-point Likert scale.

4.5 DATA COLLECTION

The previous section discussed operationalization of variables, this section discusses survey instrument, pilot test and administration of survey.

4.5.1 Survey Instrument

An Online survey was used to collect data based on managerial perceptions for this study. This is consistent with similar research studies, although most of the entry mode studies have used a mail questionnaire. Online surveys are fast replacing mail questionnaires as they (online surveys) are efficient and cost effective means of gathering perceptual data. Hence an online survey was used to gather data from top executives involved in the decision making process.

The survey was 10 pages long, including the cover page and the final page. One computer screen length (17" monitor) was considered an appropriate page length as this eliminates the need for scrolling and makes the survey more readable. Converting this to a paper and pencil survey, this survey would have been six pages long. Surveys longer than six pages are considered too long and result in low response rate (Zikmund, 1997).

The cover page gave a brief introduction of the purpose of the study and assured the respondents, that their responses would be kept confidential. The first page explained the concept of offshoring and provided information regarding various offshoring modes (information considered necessary to make sure that respondents do not misunderstand the concepts used in the study).

The survey was divided into six parts. The first part collected demographic information; second part collected information regarding the offshoring mode and service characteristics; third part was about offshoring motives, fourth about offshoring concerns, fifth part was optional, this part collected contact information only if the respondents were interested in providing more information about their offshoring experience and the final part was also optional, this part collected information regarding the offshoring practice of the entire firm or division (the previous four part collected information regarding just one offshored function).

The final page thanked the respondent and a link was included in this page, which the respondent could click if he/she was interested in receiving executive summary of the report.

4.5.2 Pilot test

The questionnaire was reviewed by five professors and five managers (who were involved in decision making process of offshoring of services). These participants were asked to review the survey, verify the readability, clarity and relevance of individual questions to the research objective. Modifications to the survey were made based on their feedback. The most helpful suggestions were to keep the survey completion time under ten minutes and avoid asking similar sounding questions as this would reduce the drop out rate and ensure that the respondents provide accurate information. The professors provided content validity and the managers provided face validity to the survey.

4.5.3 Conducting the survey

The response rate for academic surveys has been consistently declining. A study conducted by doctoral student Lane in 2007, on outsourcing received an initial response rate of 2% and after reminders the rate improved to 3%. In light of the low response rate, researcher made a worst case assumption of 2% response rate. According to Hosmer and Lemeshow (2000), as a rule of thumb, 10 data points per variable are needed to have an acceptable level of statistical power. Since this study utilizes 14 variables, a sample size of 140 is considered sufficient. In other words 140 data points (excluding missing cases) are needed to successfully run regression analysis and for the results to have any significance. Hence emails were sent to 8185 respondents with a link to the online survey. This would have resulted in approximately 160 completed data points (assuming 2% response rate) which is sufficient to run regression analysis and for the results to have any significance.

Emails sent were CAN-SPAM compliant (for details regarding CAN-SPAM compliance see <http://www.ftc.gov/bcp/online/pubs/buspubs/canspam.shtm>) in order to differentiate it from spam or junk mail (unsolicited email) and also to assure users that, it is safe to open the email (the email is free of malicious material that may harm their computer).

A reminder to fill out the survey and thanking those who have already filled out one was sent after two weeks, a practice recommended by Dillman (2000) to improve response rate.

4.6 SUMMARY

Research design, sample selection procedure, variables and their operational measures, data collection process and statistical analysis techniques used for the study were discussed in this chapter. Next chapter discusses data analysis and results.

CHAPTER FIVE

DATA ANALYSIS AND RESULTS

The research methodology was discussed in the previous chapter and results of data analysis and hypotheses testing are discussed in this chapter. Survey response and non-response bias are discussed in the first section, followed by descriptive statistics. Next section examines validity and reliability of the final sample. In the last section, results of statistical analysis, hypotheses testing and various models are discussed.

SPSS 14.0 and Microsoft Excel 2002 were used for Statistical Analysis.

5.1 SURVEY RESPONSE

8185 emails were sent, out of these 562 were undelivered for various reasons (invalid address, rejected by the destination server, rejected by the administrator). 47 respondents either refused or declined to fill. A total of 542 responses were received. 28 respondents answered 'No' to the first question in the survey (Is your firm currently involved in Offshoring of services? Yes / No) and 33 responses had missing value for the dependent variable and / or lot of missing information or had consistent option picked for all the answers (for example, some responders had picked the first option for every question). This brings down the total number of usable responses to 481, resulting in response rate of 6.35% $((542 - 28 - 33) * 100 / (8185 - 562 - 47))$. If we use the total number of respondents that responded to the survey, then this response rate jumps to 7.15% $((542) * 100 / (8185 - 562 - 47))$ (some studies use total responses received to calculate the response rate). Either way, this response rate is in line with similar studies:

Brouthers (1992) (response rate 6.5%), Lane (2007) (response rate 3%), and Poppo and Zenger (1998) (response rate 6%). According to Poppo and Zenger (1998), sourcing issues have received lot of attention and most of the managers receive 3 – 5 surveys per week and this makes it difficult to achieve higher response rates.

5.2 PSYCHOMETRIC CONCERNS

This section discusses psychometric concerns such as non-response bias, methods bias, validity, reliability and multicollinearity. A detailed analysis of psychometric issues is considered essential to ensure the validity of the results.

5.2.1 Non-response bias

Non-response bias exists when there is a significant difference between respondents and non-respondents. Existence of non-response bias, limits the applicability of the results of the study to the original sample and by extension to the population under consideration (Viswesvaran, Barick and Ones, 1993). Non-response bias can be estimated by comparing early vs. late respondents (Pace, 1939). Late respondents are considered similar to non-respondents (Armstrong and Overton, 1977).

To estimate non-response bias, responses to the first round of emails (early responders) of the surveys were compared to the responses to the second round of emails (late responders) of the surveys on various demographic variables. 198 responses were received in response to the first round of emails and 283 responses were received in response to the second round of emails. Table 5.1, shows that there is no significant difference between early vs. late responders on key demographic variables as significance in each case is > 0.05 , in other words we accept the null hypothesis that the group of early

responders is similar to the late responders. Hence it can be concluded that non-response bias for the data set is not a serious concern.

Table 5.1: Result of test for non-response bias

Variables	Independent t-test	
	t-test	Sig. (2-tailed)
Employees	0.485	0.628
Industry	-0.148	0.883
Offshored Service	1.453	0.147

5.2.2 Methods bias

Since only one form (online survey) of data collection was used methods bias does not exist for this study. Also, several studies (Van de Looij-Jansen and Jan de Wilde, 2008; Kyung, 2005) have found that online surveys are as effective as paper and pencil surveys.

5.2.3 Unidimensionality

Since all the variables were measured using single item measure unidimensionality is not a concern for this study.

5.2.4 Validity

Five professors provided content validity and five managers provided face validity to the survey. A thorough analysis of the literature ensured construct validity.

External validity (the generalizability of the results to the population) would be an issue, since a convenience sample was used, but given the large number of firms this survey was sent to, this should not be a concern.

Also, convergent and discriminant validity are not applicable to this study as they are applicable to multi-item scales and not to single- item measures.

5.2.4 Reliability

Measures used in this study were single-item measures. Reliability of single-item measures can be estimated by using either correction for attenuation formula (Wanous and Reichers, 1996; Wanous et. al., 1997 and Wanous and Hudy, 2001) or factor analysis (Harman, 1967; Wanous and Hudy, 2001). This study uses correction for attenuation formula to estimate the reliability of the single-item measures used in this study.

Correction for attenuation formula

Per Nunnally and Bernstein, (1994:257), correction for attenuation formula is expressed as:-

$$\bar{r}_{xy} = r_{xy} / (\sqrt{r_{xx}} * \sqrt{r_{yy}}) \dots\dots\dots(5.1a)$$

r_{xy} = the correlation between variables x and y

r_{xx} = the reliability of variable x

r_{yy} = the reliability of variable y

\bar{r}_{xy} = the estimated true correlation between variables x and y

When both variables x and y come from the same conceptual domain, then $\bar{r}_{xy} = 1.00$ (Nunnally, 1978:220), and then the formula (5.1a) becomes

$$r_{xy} = \sqrt{r_{xx}} * \sqrt{r_{yy}} \dots\dots\dots(5.1b)$$

Assuming $\bar{r}_{xy} = 1.00$ is the most conservative approach, and relaxing it to 0.95 or 0.90 results in higher estimates for the reliability of the single item (Wanous and Reichers, 1996; Wanous et. al., 1997 and Wanous and Hudy, 2001)

Using formula (5.1a) to calculate r_{yy}

$$r_{yy} = (r_{xy})^2 / (\bar{r}_{xy})^2 * r_{xx}$$

Table 5.2 shows calculations for r_{yy} (single item reliability) using SPSS 14.0 and Microsoft Excel 2002.

A minimum reliability estimate of 0.70 is considered acceptable for single item reliability (Wanous and Reichers, 1996; Wanous et. al., 1997 and Wanous and Hudy, 2001).

Employees (0.49), Reduce Cost (0.29), Reduce Time (0.34), Access Skills (0.34), Host Country Incentives (0.66), Host Country Uncertainty (0.34), Cultural Distance (0.43) and Lack of Partner / Vendor (0.54) had minimum reliability estimate less than 0.70 (assuming $\bar{r}_{xy} = 0.90$). The rest of the items meet or exceed the minimum reliability estimate of 0.70.

According to Nunnally (1978), for basic research reliabilities in the range of 0.5 – 0.6 are considered satisfactory. This makes Host Country Incentives (0.66) and Lack of Partner / Vendor (0.54) eligible for further analysis. The number of items with acceptable reliabilities is similar to other entry mode studies.

Since this is an exploratory study, two models will be evaluated, first one with all the variables (full model) and second with the variable with reliability higher than 0.5 (reduced model).

Table 5.2: Calculations for single item reliability

Sr. No.	Item	Squared Multiple Correlation (r_{xy}^2)	Cronbach's Alpha if Item Deleted r_{xx}	r_{yy} (when $\bar{r}_{xy} = 1.00$)	r_{yy} (when $\bar{r}_{xy} = 0.95$)	r_{yy} (when $\bar{r}_{xy} = 0.90$)
1	Employees (Firm size)	0.29	0.73	0.39	0.44	0.49
2	Strategic Importance	0.49	0.68	0.72	0.80	0.89
3	Customization	0.44	0.68	0.65	0.72	0.80
4	Proprietary Technology	0.48	0.68	0.70	0.78	0.87
5	Reduce Cost	0.17	0.72	0.23	0.26	0.29
6	Reduce Time	0.20	0.71	0.28	0.31	0.34
7	Access Skills	0.20	0.72	0.27	0.30	0.34
8	Access Markets	0.45	0.68	0.67	0.74	0.82
9	Host Country Incentives	0.37	0.70	0.54	0.59	0.66
10	Data Security/ Privacy	0.39	0.68	0.58	0.64	0.72
11	Intellectual Property Protection	0.41	0.68	0.61	0.67	0.75
12	Host Country Uncertainty	0.21	0.76	0.28	0.31	0.34
13	Cultural Distance	0.25	0.72	0.35	0.38	0.43
14	Lack Of Partner /Vendor	0.31	0.71	0.43	0.48	0.54

5.2.5 Multicollinearity

Multicollinearity in plain English means redundant information. In this study multicollinearity is tested using VIF scores and correlation matrix. This study also discusses the effect of interaction terms on multicollinearity.

a) Variance Inflation Factor (VIF)

As the dependent variable in this study is an ordinal variable (with three possible values) multinomial logistic regression will be used to test hypothesis. According to Menard (2002), Ordinary Least Square (OLS) regression can be used to calculate VIF and the rest of the output of OLS regression can be ignored. Since we are interested in the relationship among independent variables, we can ignore the functional form of the dependent variable (Menard, 2002). As a rule of thumb VIF value greater than 10 indicates multicollinearity (Stevens, 1992; Neter, Wasserman, Kutner, 1989).

Table 5.3 displays VIF values for independent variables, these values are between 1.03 and 1.95, and none of them is greater than 10. Hence multicollinearity is not a concern for these variables.

Table 5.3: VIF values for independent variables

Sr. No	Variable	Collinearity Statistics	
		Tolerance	VIF
1	Employees	0.971	1.03
2	Strategic Importance	0.512	1.95
3	Customization	0.558	1.79
4	Proprietary Technology	0.524	1.91
5	Reduce Cost	0.831	1.2
6	Reduce Time	0.804	1.24
7	Access Skills	0.803	1.25
8	Access Markets	0.547	1.83
9	Host Country Incentives	0.625	1.6
10	Data Security/ Privacy	0.607	1.65
11	Intellectual Property Protection	0.588	1.7
12	Host Country Uncertainty	0.79	1.27
13	Cultural Distance	0.751	1.33
14	Lack Of Partner /Vendor	0.691	1.45

b) Correlation matrix

When both dependent and independent variables are ordinal (as is the case for this study), Spearman's rho is the appropriate correlation coefficient (Hinkle, Wiersma and Jurs, 2003). One tailed correlation is used as we are testing for directionality.

According to Hair et. al (1995), correlations above 0.8 indicate multicollinearity. As is clear from table 5.4 the highest correlation coefficient is 0.60 and it is below 0.80, hence multicollinearity is not a concern for these variables.

Table 5.4: Spearman's rho correlation coefficients

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Offshoring Mode														
2. Employees	.054													
3. Strategic Importance	.600**	.064												
4. Customization	.299**	.125**	.523**											
5. Proprietary Technology	.251**	.053	.591**	.500**										
6. Reduce Cost	.132**	-.060	.168**	-.019	.202**									
7. Reduce Time	.292**	.026	.157**	.116**	.116**	.054								
8. Access Skills	.143**	.040	.077*	.065	.003	.010	.303**							
9. Access Markets	.235**	.010	.329**	.348**	.284**	.075	.159**	.086*						
10. Host Country Incentives	.140**	-.003	.116**	.189**	.117**	.033	.100*	.111**	.504**					
11. Data Security/ Privacy	.436**	.017	.367**	.279**	.349**	.126**	.180**	.141**	.277**	.217**				
12. Intellectual Property Protection	.263**	.080*	.311**	.303**	.243**	.156**	.168**	.167**	.360**	.270**	.521**			
13. Host Country Uncertainty	-.233**	-.038	-.020	-.031	.005	-.095*	-.249**	-.102*	.011	-.036	-.167**	-.154**		
14. Cultural Distance	.245**	.022	.171**	.130**	.106*	.111**	.227**	.330**	.115**	.067	.203**	.211**	-.402**	
15. Lack Of Partner /Vendor	.313**	.011	.177**	.143**	.126**	.278**	.092*	.037	.156**	.312**	.361**	.378**	-.242**	.129**

** Correlation is significant at the 0.01 level (1-tailed).

* Correlation is significant at the 0.05 level (1-tailed).

c) Multicollinearity and Interaction terms

This study used two interaction terms StartXCust and StartXProp. StartXCust studied the interaction effects of increase in strategic importance of the offshored service and increase in customization required for the production/ performance of the offshored service on the mode of offshoring. StartXProp studied the interaction effects of increase in strategic importance of the offshored service and increase in proprietary nature of technology used in production/performance of the offshored service on the mode of offshoring.

Use of interaction terms results in multicollinearity. Table 5.5 shows the Spearman's rho correlation coefficient between the variables and their interaction terms. Spearman's rho correlation coefficient between Strategic Importance and StartXCust is .864; between Strategic Importance and StartXProp is .854; between Customization and StartXCust is .856; between Proprietary Technology and StartXProp is .909 and between StartXCust and StartXProp is .813. All these correlation coefficients are above 0.8 and according to Hair et. al (1995), this indicates multicollinearity. Also from table 5.5, VIF for the variables and their interaction terms is above 10 and per Stevens (1992) and Neter, Wasserman and Kutner (1989) indicates multicollinearity.

Table 5.5: Spearman's rho correlation coefficients and VIF for variables and their interaction terms

Variable	1	2	3	4	VIF
1. Strategic Importance					11.94
2. Customization	.523				10.32
3. Proprietary Technology	.591	.500			12.16
4. StratXCust	.864	.856	.629		29.18
5. StratXProp	.854	.565	.909	.813	28.74

Although many studies use original variables and interaction terms simultaneously (in the same model) when running regression, one of the biggest problem with this practice is that coefficient estimates would be very unreliable and would differ significantly from one sample to the other. Also the coefficients tend to lose their significance and even change sign with the introduction of interaction term(s) or higher order term(s). Coefficients changing sign or losing significance would not be a problem if it happened after introduction of new information, but since it happens after introduction of same (redundant) information (interaction term or higher order term), this makes the coefficients unreliable.

Table 5.6 illustrates the effect of multicollinearity on coefficients and their significance. This table was created with the variables used in this study using ordinal regression, similar results are observed using binomial or multinomial regression.. From column A) of table 5.6 we see that the variable Strategic Importance is positive and statistically significant at $p < 0.001$ when there are no interaction terms used in the model. After introduction of interaction term StratXCust (refer to column B), the coefficient of variable Strategic Importance becomes less positive and becomes significant at $p < 0.05$ (as opposed to statistically significant at $p < 0.001$, with no interaction term). After

introduction of second interaction term StratXProp (refer to column C), the coefficient of variable Strategic Importance becomes even less positive and is no longer statistically significant. Similarly, the variable Customization changes sign, (becomes negative) after introduction of the interaction term StratXCust. Third variable Proprietary Technology is not affected significantly by the use of interaction term StratXProp. Also, similar results were observed for higher order terms. Hence it is clear from this discussion that multicollinearity makes the coefficient estimates unreliable and we need to find a way of reducing / eliminating multicollinearity.

Table 5.6: Effect of multicollinearity on coefficients and their significance

	A) No interaction terms	B) Including StratXCust interaction term	C) Including StratXCust and StratXProp interaction terms
Employees (Firm size)	.045(.654)	.047(.641)	.042(.674)
StrategicImportance	1.321***(.000)	.697**(.023)	.540(.102)
Customization	.050(.677)	-.686*(.051)	-.497(.180)
ProprietaryTech	-.519***(.000)	-.486***(.000)	-.877***(.009)
Reduce Cost	-.020(.908)	-.075(.672)	-.098(.581)
Reduce Time	.309***(.009)	.334***(.006)	.330*** (.006)
Access Skills	-.049(.662)	-.038(.737)	-.037(.742)
Access Markets	.025(.843)	.028(.824)	.030(.815)
Host Country Incentives	-.096(.424)	-.087(.474)	-.092(.449)
Data Security/ Privacy	.505***(.000)	.468*** (.000)	.456*** (.000)
Intellectual Property Protection	-.122(.380)	-.134(.338)	-.143(.306)
Host Country Uncertainty	-.251**(.021)	-.252**(.021)	-.253**(.021)
Cultural Distance	.218**(.045)	.220(.045)	.228(.038)
Lack Of Partner /Vendor	.499***(.000)	.436*** (.001)	.422*** (.001)

StratXCust		.204**(.026)	.150(.127)
StratXPropTech			.111(.204)
Chi-Square (Significance)	252.424(.000)	257.409(.000)	258.999(.000)
Pseudo R-Square (Cox and Snell, Nagelkerke, McFadden)	.470, .532, .295	.476, .539, .301	.478, .541, .303

N= 398, *** p < 0.01, ** p < 0.05, * p < 0.10; significance in parenthesis

d) Solutions for reducing / eliminating multicollinearity

Centering independent variables (IV) is a solution proposed by Aiken, West and Reno (1991). Centering or standardizing is the practice of subtracting mean of the variable from the individual values for that variable. Adding or subtracting a constant such as mean (as is done in centering) keeps the nature of the data intact and is accepted as a standard data manipulation practice. The suffix 'z', before the variable is used to indicate that the variable has been centered or standardized. Table 5.7 shows that centering does not reduce the problem of multicollinearity, as the correlation coefficients and VIF are identical between the zscore of the variables and un-centered variables (table 5.5). Centering IV is a practice also used by many scholars, although it is helpful in reducing multicollinearity between variables, but as you can see this practice does not work for interaction terms. Some scholars suggest centering just one of the IVs, but this practice also results in identical (to table 5.5 and 5.7) correlation coefficients and VIF for the variables and their interaction terms.

Table 5.7: Spearman's rho correlation coefficients and VIF for variables and their interaction terms after centering

Variable	1	2	3	4	VIF
1. zStrategic Importance					11.94
2. zCustomization	.523				10.32
3. zProprietary Technology	.591	.500			12.16
4. zStratXCust	.864	.856	.629		29.18
5. zStratXProp	.854	.565	.909	.813	28.74

Friedrich (1982), proposed a solution for this. According to Friedrich, instead of standardizing the interaction terms, the standardized individual variables are multiplied to create the interaction term. This practice does reduce the correlation coefficient, but alters the data significantly, making it useless. For example an interaction term involving two very low negative terms would yield a large positive term and there would be no way to differentiate this large positive term from another large positive term that is a result of interaction of two large positive terms. Again this practice has also been used by scholars, but as explained earlier, this practice should not be used.

Cooper and Nakanishi (1983) proposed a solution to eliminate the drawback associated with Friedrich (1982), their method involves computing a zeta term.

The zeta term is computed as follows

$$\begin{aligned}
 ZX &= 1 + zX^2 && \text{if } zX > 0 \\
 &= 1 / (1 + zX^2) && \text{if } zX < 0
 \end{aligned}$$

where X = variable

zX = standardized X

ZX = Zeta X

This practice is also used by scholars, but using Zeta scores also does not eliminate multicollinearity, as is evident from table 5.8

Table 5.8: Spearman's rho correlation coefficients and VIF for variables and their interaction terms after Zeta transformation

Variable	1	2	3	4	VIF
1. ZStrategic Importance					11.94
2. ZCustomization	.523				10.32
3. ZProprietary Technology	.591	.500			12.16
4. ZStratXCust	.864	.856	.629		29.18
5. ZStratXProp	.854	.565	.909	.813	28.74

Some scholars even use higher order terms in the same model, but table 5.9 shows that higher order terms also do not solve the problem of multicollinearity. Table 5.9 was created using one of the variables used in this study 'Strategic Importance'. As is clear from the table the problem of multicollinearity still exists.

Table 5.9: Spearman's rho correlation coefficients and VIF for higher order terms

Variable	1	2	VIF
1. Strategic Importance			457.66
2. Strategic Importance Square	1.00		2435.18
3. Strategic Importance Cube	1.00	1.00	840.06

One of the basic requirements of data manipulation is that the underlying data should not lose its meaning or the interpretation of the transformed data should be the same as the original data. Hence adding or subtracting a constant such as mean (as is done in centering) keeps the nature of the data intact. But the only way to get rid of

multicollinearity (redundant information) is to alter the data, but if the underlying data is altered then it loses its original characteristics. This is a catch 22 situation.

Hence from the above discussion it is clear that the best way to deal with multicollinearity is not to use original terms and the interaction terms simultaneously in the same regression equation/model.

Since the psychometric concerns are addressed, we look at respondent profile and descriptive statistics, followed by model analysis

5.3 DESCRIPTIVE STATISTICS

Table 5.10 shows descriptive statistics of the data. This data is provided to give the readers an overall sense of the data being analyzed. Also for respondent profile, please see Appendix B.

5.3.1 Missing Data

Missing values were ignored using ‘Exclude cases pairwise’ option in SPSS. ‘Exclude cases listwise’ excludes the entire row, but ‘Exclude cases pairwise’ option excludes the cases only for the variables under consideration. Missing values were not replaced with mean (this method is frequently used) as this may sometimes bias the results of regression analysis.

5.3.2 Data formatting

Except for the independent variable Employee and dependent variable Offshoring Mode, data for the rest of the variables was collected using 5 point Likert scale. For the

variable Employee, values 1 through 6 were assigned for the options (for total number of employees) 500 – 1000 through over 100,000.

The dependent variable Offshoring Mode could take values from 1 through 3. Value 1 represented External, 2 Cooperative and 3 Internal mode of sourcing. These values (1 through 3) were arranged from low to high, 1 (External) representing low level of ownership / control, 2 (Cooperative) representing medium level of ownership / control and 3 (Internal) representing high level of ownership / control. But the values for the rest of the IVs were reverse of this, they were from 1 through 5, where 1 represented high and 5 represented low. In order to be consistent with the scale used for the dependent variable (low to high) and also to make the scale go from low to high for the rest of the variables, the values for individual variables were reversed. A practice regularly used in data formatting, as this does not alter the characteristics of the data.

5.3.3 Skewed Data

As is evident from table 5.10, median for most of the variables is 4.00, which makes the data skewed. A major cause of skewed data distributions is extreme values, also known as outliers. Since the data for most of the variables was collected using a 5-point Likert scale, there are no outliers in the data as we can see from the table 5.10 that the minimum (1) and maximum (5) are within the limits. Hence outliers are not the cause of skewness of the data distribution.

Another reason for skewed data is that the measurements are often constrained to fall within a certain limit (Lockhart, 1997). This certainly seems to be the case in this

study, as it uses 5 point likert scale. But, various researchers studying entry mode for firms have routinely used 5 point likert scale to collect information on similar variables.

Further, Von Hippel (2005) demonstrates that skewed data distributions are not at all unusual if the distribution is discrete. Any value that varies from other values only by whole, countable units is considered a discrete value. Since this study uses 5 point likert scale, it uses discrete values ranging from 1 through 5 for almost all the variables and hence the skewness in the data could be attributed to the discrete nature of the data.

Moreover Bi, Faloutsos and Korn (2001) argue that skewed data distributions are fairly common in behavioral sciences and hence acceptable. Also, according to Long (1997), the data is not required to be normally distributed for either of the regression methods (multinomial logistic regression, binomial regression and ordinal regression) used in this study.

Hence the researcher believes that the skewness of the data is not a concern for this study.

Table 5.10 Descriptive Statistics

	N		Median	Std. Deviation	Variance	Range	Minimum	Maximum
	Valid	Missing						
Offshoring Mode	478	3	2.00	.821	.673	2	1	3
Employees	468	13	3.00	1.131	1.280	5	1	6
Strategic Importance	481	0	4.00	1.267	1.605	4	1	5
Customization	480	1	4.00	1.255	1.574	4	1	5
Proprietary Technology	473	8	4.00	1.261	1.589	4	1	5
Reduce Cost	479	2	4.00	.711	.505	4	1	5
Reduce Time	464	17	4.00	.998	.995	4	1	5
Access Skills	475	6	4.00	1.098	1.205	4	1	5
Access Markets	462	19	4.00	1.178	1.389	4	1	5
Host Country Incentives	471	10	4.00	1.147	1.315	4	1	5
Data Security/ Privacy	464	17	4.00	1.223	1.496	4	1	5
Intellectual Property Protection	473	8	4.00	1.076	1.158	4	1	5
Host Country Uncertainty	470	11	2.00	1.107	1.226	4	1	5
Cultural Distance	475	6	4.00	1.128	1.273	4	1	5
Lack Of Partner /Vendor	476	5	4.00	1.048	1.099	4	1	5

5.4 MODEL ANALYSIS

This study evaluated two models, first one with all the variables (full model) and second with variable with reliability higher than 0.5 (reduced model). Before evaluating the models, we look at the regressions methods appropriate for this study.

5.4.1 Regression Methods

Since the dependent variable in this study is an ordinal variable (with three possible values) multinomial logistic regression was used to test hypotheses. In addition, binomial regression and ordinal regression were also used to confirm the results of multinomial logistic regression.

Previous studies (Esther Sanchez-Peinado et al., 2007; Brouthers and Brouthers 2003; Brouthers, 2002; Murray and Kotabe, 1999; Kwon and Konopa, 1993; Erramilli and Rao, 1993;) conceptualized mode of entry as a dichotomous variable, hence binomial regression is used to test between two sets of entry mode choice: Internal only vs. other modes (Cooperative + External) and External only vs. other modes (Internal + Cooperative).

Also, since the entry modes can be rank ordered in terms of level of control (the level of control is highest for internal mode, lowest for external mode and medium for cooperative mode), ordinal regression can also be used to study the effects of various variables on the entry mode. But, per SPSS (2005), in order to use ordinal regression, the data has to satisfy the assumption of parallel lines. Parallel lines test is used to test if the regression coefficients are not significantly different across levels of the response variable (SPSS, 2005). Table 5.11 shows the results of test of parallel lines. The finding of non-significance (Significance = 0.127 which is greater than 0.05) in this case, shows that the assumption of parallel lines is met. Hence ordinal regression can be used to study the effects of various independent variables on mode of offshoring.

5.11 Test of Parallel Lines ^a

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	603.494			
General	583.386	20.108	14	.127

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a Link function: Logit.

Both multinomial and binomial logistic regressions are less restrictive and do not require the test of parallel lines (SPSS, 2005).

5.4.2 Full model

As per the discussion under ‘5.2.5 c) Multicollinearity and Interaction terms’ section, this study will not use original terms and the interaction terms simultaneously in the same regression equation/model.

As discussed in the previous section, multinomial logistic regression, binomial regression and ordinal regression were used to test the models.

In multinomial logistic regression, one category of the dependent variable is chosen as the comparison category. Three models were evaluated using each of the three categories of the dependent variable as the comparison category. Table 5.12 provides summary of results of multinomial logistic regression. Models A1 through A3 compare modal choice between internal and cooperative modes, models B1 through B3 compare modal choice between cooperative and external modes and models C1 through C3 compare modal choice between internal and external modes.

Table 5.13 provides summary of results of binomial regression. Models D1 through D3 compare modal choice between internal and cooperative + external modes, models E1 through E3 compare modal choice between external and internal +

cooperative and modes. Also, for models E1 through E3, signs for the coefficients will be reversed while interpreting the coefficients, as this model evaluates External vs. other modes (Internal + Cooperative), whereas the rest of the models evaluate either internal vs. cooperative / external or cooperative vs. external.

Table 5.12 Summary of results of multinomial logistic regression (Full model)

	Multinomial regression								
	A) Internal vs. Cooperative			B) Cooperative vs. External			C) Internal vs. External		
	A1) No interaction terms	A2) Including StratXCust and excluding Strategic Importance and Customization	A3) Including StratXProp and excluding Strategic Importance and ProprietaryTech	B1) No interaction terms	B2) Including StratXCust and excluding Strategic Importance and Customization	B3) Including StratXProp and excluding Strategic Importance and ProprietaryTech	C1) No interaction terms	C2) Including StratXCust and excluding Strategic Importance and Customization	C3) Including StratXProp and excluding Strategic Importance and ProprietaryTech
Employees (Firm size)	.130(.298)	.130(.285)	.105(.375)	-.146 (.307)	-.189(.174)	-.151(.263)	-.016(.921)	-.059(.701)	-.046(.750)
Strategic Importance	1.145***(.000)			.958***(.000)			2.103***(.000)		
Customization	.088(.573)		.113(.418)	.132(.422)		.036(.816)	.220(.269)		.149(.380)
StratXCust		.131***(.000)			.194**(.000)			.325***(.000)	
ProprietaryTech	-.512***(.002)	-.407***(.007)		-.282(.106)	-.241(.153)		-.794***(.000)	-.648***(.001)	
StratXPropTech			.043*(.078)			.122***(.000)			.165***(.000)
Reduce Cost	-.106(.639)	-.014(.945)	-.204(.338)	.106(.658)	.225(.317)	-.054(.819)	-.001(.998)	.210(.396)	-.259(.319)
Reduce Time	.544***(.001)	.535***(.001)	.543***(.001)	.064(.689)	.054(.736)	-.031(.838)	.608***(.004)	.589***(.003)	.512***(.007)
Access Skills	.018(.902)	.012(.929)	.049(.717)	-.039(.807)	-.048(.758)	-.041(.788)	-.021(.911)	-.035(.843)	.008(.962)
Access Markets	.177(.285)	.230(.138)	.255*(.089)	-.173(.352)	-.140(.432)	-.149(.389)	.005(.983)	.090(.650)	.106(.575)
Host Country Incentives	-.123(.413)	-.196(.182)	-.158(.272)	.068(.707)	-.024(.887)	.056(.734)	-.055(.784)	-.220(.241)	-.102(.572)
Data Security/Privacy	.495***(.001)	.446***(.002)	.390***(.006)	.276*(.078)	.229(.126)	.169(.235)	.771***(.000)	.675***(.000)	.560***(.001)
Intellectual Property Protection	-.121(.512)	-.131(.448)	-.072(.666)	-.114(.549)	-.071(.693)	.012(.948)	-.235(.313)	-.202(.335)	-.060(.760)
Host Country Uncertainty	-.216(.131)	-.179(.202)	-.144(.292)	-.130(.381)	-.118(.417)	-.174(.219)	-.347*(.056)	-.297*(.086)	-.318*(.052)
Cultural Distance	.133(.355)	.114(.414)	.165(.232)	.281*(.064)	.262*(.074)	.254*(.077)	.414**(.022)	.376**(.027)	.419*(.010)
Lack Of Partner /Vendor	.176(.295)	.108(.494)	.120(.454)	.636***(.000)	.658***(.000)	.467***(.004)	.812***(.000)	.767***(.000)	.588***(.002)
Chi-Square (Significance)	266.689(.000)	231.335(.000)	189.552(.000)	266.689(.000)	231.335(.000)	189.552(.000)	266.689(.000)	231.335(.000)	189.552(.000)
Pseudo R-Square (Cox and Snell, Nagelkerke, McFadden)	.488, .553, .312	.441, .499, .270	.379, .429, .221	.488, .553, .312	.441, .499, .270	.379, .429, .221	.488, .553, .312	.441, .499, .270	.379, .429, .221

N=398; *** p < 0.01, ** p < 0.05, * p < 0.10; significance in parenthesis

Table 5.13: Summary of results of binomial regression (Full model)

	Binomial regression					
	D) Internal vs (Cooperative + External)			E) External vs (Internal + Cooperative)		
	D1) No interaction terms	D2) Including StratXCust and excluding Strategic Importance and Customization	D3) Including StratXProp and excluding Strategic Importance and ProprietaryTech	E1) No interaction terms	E2) Including StratXCust and excluding Strategic Importance and Customization	E3) Including StratXProp and excluding Strategic Importance and ProprietaryTech
Employees (Firm size)	.102(.398)	.092(.425)	.066(.550)	.102(.456)	.145(.267)	.105(.403)
StrategicImportance	1.394***(.000)			-1.280***(.000)		
Customization	.093(.540)		.109(.405)	-.158(.325)		-.080(.580)
StratXCust		.172***(.000)			-.241***(.000)	
ProprietaryTech	-.581***(.000)	-.455***(.001)		.429*(.010)	.384(.016)	
StratXPropTech			.077***(.001)			-.139***(.000)
Reduce Cost	-.098(.653)	.022(.907)	-.244(.220)	-.059(.796)	-.221(.295)	.115(.602)
Reduce Time	.549***(.001)	.540***(.001)	.533***(.001)	-.193(.226)	-.204(.184)	-.131(.370)
Access Skills	.007(.962)	-.005(.970)	.039(.764)	.041(.790)	.058(.695)	.050(.730)
Access Markets	.138(.393)	.188(.207)	.214(.131)	.121(.498)	.071(.675)	.063(.703)
Host Country Incentives	-.101(.486)	-.191(.172)	-.141(.296)	-.007(.969)	.108(.508)	.020(.900)
Data Security/ Privacy	.549***(.000)	.496***(.000)	.440***(.001)	-.401***(.009)	-.368*(.010)	-.309**(.022)
Intellectual Property Protection	-.142 (.427)	-.144(.378)	-.068(.661)	.146(.432)	.100(.563)	.000(.999)
Host Country Uncertainty	-.243*(.082)	-.209(.120)	-.187(.149)	.194(.185)	.191(.176)	.261*(.052)
Cultural Distance	.196(.156)	.181(.172)	.245*(.058)	-.310**(.036)	-.289**(.039)	-.296**(.029)
Lack Of Partner /Vendor	.326**(.041)	.265*(.073)	.265*(.074)	-.723***(.000)	-.714***(.000)	-.534***(.000)
Chi-Square (Significance)	194.817(.000)	163.58(.000)	134.128(.000)	162.868(.000)	146.46(.000)	121.394(.000)
Pseudo R-Square (Cox and Snell, Nagelkerke)	.387, .520	.337, .453	.286, .384	.336, .498	.308, .457	.263, .390

N =398, *** p < 0.01, ** p < 0.05, * p < 0.10; significance in parenthesis, † Signs for the coefficients for models E1, E2 and E3 will be reversed while interpreting the coefficients as this model evaluates External only vs. other modes (Internal + Cooperative), whereas the rest of the models evaluate either internal vs. cooperative / external or cooperative vs. external.

Table 5.14 provides summary of results of ordinal regression. Models F1 through F3 compare choice between various modes.

Table 5.14: Summary of results of ordinal regression (Full model)

	Ordinal Regression		
	F1) No interaction terms	F2) Including StratXCust and excluding Strategic Importance and Customization	F3) Including StratXProp and excluding Strategic Importance and ProprietaryTech
Employees (Firm size)	.045(.654)	.035(.714)	.033(.723)
StrategicImportance	1.321***(.000)		
Customization	.050(.677)		.035(.752)
StratXCust		.181***(.000)	
ProprietaryTech	-.519***(.000)	-.428***(.000)	
StratXPropTech			.096***(.000)
Reduce Cost	-.020(.908)	.125(.433)	-.167(.309)
Reduce Time	.309***(.009)	.335***(.004)	.308***(.007)
Access Skills	-.049(.662)	-.072(.501)	-.078(.468)
Access Markets	.025(.843)	.093(.447)	.124(.297)
Host Country Incentives	-.096(.424)	-.200*(.090)	-.140(.221)
Data Security/ Privacy	.505***(.000)	.456***(.000)	.409***(.000)
Intellectual Property Protection	-.122(.380)	-.130(.320)	-.073(.568)
Host Country Uncertainty	-.251**(.021)	-.222**(.036)	-.249**(.016)
Cultural Distance	.218**(.045)	.217**(.040)	.264(.011)
Lack Of Partner /Vendor	.499***(.000)	.441***(.000)	.401***(.001)
Chi-Square (Significance)	252.424(.000)	209.390(.000)	170.263(.000)
Pseudo R-Square (Cox and Snell, Nagelkerke, McFadden)	.470, .532, .295	.409, .463, .245	.348, .394, .199

N= 398, *** p < 0.01, ** p < 0.05, * p < 0.10; significance in parenthesis

5.4.3 Reduced model

Variable with reliability lower than 0.5 were omitted and ordinal regression was used to test this reduced model. Ordinal models (F1 through F3) seem to be the most parsimonious models as they provide similar results as provided by Multinomial logit models (models A1 through C3), but with lot lower computations. Hence, ordinal regression was used to test the reduced model. Models G1 through G3 compare choice between various modes, using only the variables that provided acceptable level of reliability (see section 5.2.4 for reliability of variables). Table 5.15 provides summary of results of ordinal regression for the reduced model.

Table 5.15: Summary of results of ordinal regression (Reduced model)

	Ordinal Regression (Reduced Model)		
	G1) No interaction terms	G2) Including StratXCust and excluding Strategic Importance and Customization	G3) Including StratXProp and excluding Strategic Importance and ProprietaryTech
StrategicImportance	1.287***(.000)		
Customization	.081(.452)		.083(.392)
StratXCust		.179***(.000)	
ProprietaryTech	-.539***(.000)	-.424***(.000)	
StratXPropTech			.084***(.000)
Access Markets	.016(.891)	.085(.448)	.121(.265)
Host Country Incentives	-.079(.486)	-.193*(.083)	-.149(.164)
Data Security/ Privacy	.596***(.000)	.558***(.000)	.507***(.000)
Intellectual Property Protection	-.188(.129)	-.192(.102)	-.106(.351)
Lack Of Partner /Vendor	.526***(.000)	.472***(.000)	.416***(.000)
			.
Chi-Square (Significance)	248.374(.000)	199.527(.000)	151.500(.000)
Pseudo R-Square (Cox and Snell, Nagelkerke, McFadden)	.431, .488, .263	.365, .413, .211	.291, .330, .160

N= 440, *** p < 0.01, ** p < 0.05, * p < 0.10; significance in parenthesis

5.4.3 Analysis of various models

Models with suffix 1 (A1, B1, C1, D1, E1, F1 and G1) did not include any interaction terms, models with suffix 2 (A2, B2, C2, D2, E2, F2 and G2) included the interaction term StratXCust (interaction between Strategic Importance and Customization) and as per earlier discussion (under the section ‘5.2.5 c) Multicollinearity and Interaction terms’) individual terms Strategic Importance and Customization were excluded from the model. Finally, models with suffix 3 (A3, B3, C3, D3, E3, F3 and G3) included the interaction term StratXProp (interaction between Strategic Importance and Proprietary Technology) and as per earlier discussion (under the section ‘5.2.5 c) Multicollinearity and Interaction terms’) individual terms Strategic Importance and Proprietary Technology were excluded from the model.

Tables 5.12 through 5.15 indicate that the chi square and R-square are higher for models with suffix 1 (A1, B1, C1, D1, E1, F1 and G1) with no interaction terms than for models with suffix 2 (A2, B2, C2, D2, E2, F2 and G2) and suffix 3 (A3, B3, C3, D3, E3, F3 and G3) with interaction terms. In other words models without interaction terms seem to fit the data better. Also models with suffix 2 (models with StratXCust interaction term) provided a better fit as indicated by their respective chi square and R-square than models with suffix 3 (models with StratXProp interaction term).

Moreover, multinomial logit models (models A1 through C3) provided a better fit than comparable ordinal models (F1 through F3) and binomial models (D1 through E3) as indicated by chi square and R-square. Also binomial models (D1 through E3), seem to provide the least appropriate fit as indicated by chi square and R-square. Ordinal models (F1 through F3) seem to be the most parsimonious models as they provide similar results

as provided by multinomial logit models (models A1 through C3), but with lot lower computations.

Ordinal models (F1 through F3) which included all the variables (full model) provided a better fit as indicated by chi square and R-square, compared to comparable ordinal models (G1 through G3) which did not include all the variables (reduced model).

5.5 HYPOTHESES TESTING

Table 5.16 provides hypotheses summary for all three methods of regression and also includes full as well as reduced models. This table indicates that even though various methods of regressions were used to test the hypotheses, there was considerable agreement in the conclusion / results of various hypotheses across different methods. Also, effects of different regression methods on hypotheses are discussed in this section.

5.5.1 Capabilities

a) Firm Size

H1: As firm size increases, firms would prefer an internal mode of offshoring over either a cooperative or an external mode.

According to this hypothesis with increase in firm size, firms would prefer only internal mode of offshoring and none of the other methods (cooperative or external) would be preferred.

Table 5.16: Hypotheses summary for all three methods of regression (including full and reduced models)

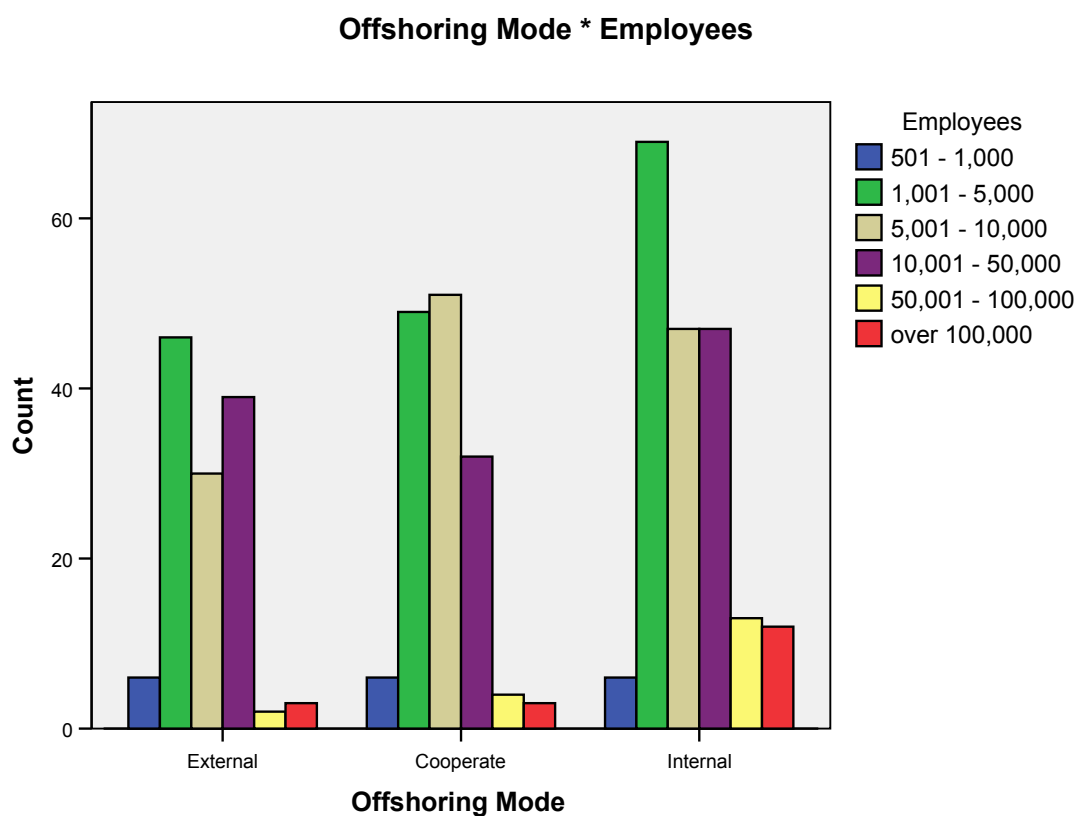
		Expected mode/level of control	Overall Support for the hypothesis	Multinomial regression			Binomial Regression		Ordinal Regression (F1 – F3)	Ordinal Regression (Reduced Model) (G1 – G3)
				Internal vs Cooperative (A1 –A3)	Cooperative vs. External (B1 - B3)	Internal vs. External (C1 – C3)	Internal vs (Cooperative + External) (D1 – D3)	External vs (Internal + Cooperative) (E1 – E3)		
H1	Employees (Firm size)	+	N	N/A	N/A	N/A	N	N/A	N/A	N/A
H2	StrategicImportance	+	SS	SS	SS	SS	SS	SS	SS	SS
H3a	Customization	Internal not preferred	N	N/A	N/A	N/A	NS	NS	N/A	N/A
H3b	StratXCust	+	SS	SS	SS	SS	SS	SS	SS	SS
H4a	ProprietaryTech	Internal not preferred	S	N/A	N/A	N/A	SS	SS	N/A	N/A
H4b	StratXPropTech	+	SS	WS	SS	SS	SS	SS	SS	SS
H5	Reduce Cost	No effect	S	S	S	S	S	S	S	N/A
H6	Reduce Time	-	NSOD	NSOD	N	NSOD	NSOD	N	NSOD	N/A
H7	Access Skills	+	N	N	N	N	N	N	N	N/A
H8	Access Markets	+	N	WS	N	N	N	N	N	N
H9	Host Country Incentives	+	N	N	N	N	N	N	N	N
H10	Data Security/ Privacy	+	SS	SS	WS	SS	SS	S	SS	SS
H11	Intellectual Property Protection	+	N	N	N	N	N	N	N	N
H12	Host Country Uncertainty	-	WS	N	N	WS	N	N	S	N/A
H13	Cultural Distance	-	NSOD	N	NSOD	NSOD	NSOD	NSOD	NSOD	N/A
H14	Lack Of Partner /Vendor	+	S	N	SS	SS	S	SS	SS	SS

N –Not supported, NSOD – Not supported but significant in the opposite direction, SS –Strong Support (p<0.01), S- Supported (p<0.05), WS – Weak Support (p<0.10), N/A –Not Applicable

This hypothesis was tested using binomial regression (models D1 – D3) and was not supported .

Also, fig 5.1 confirms that increase in firm size does not lead to increase in firm opting for internal mode of offshoring.

Fig 5.1 Offshoring Mode vs. Employees



5.5.2 Characteristics

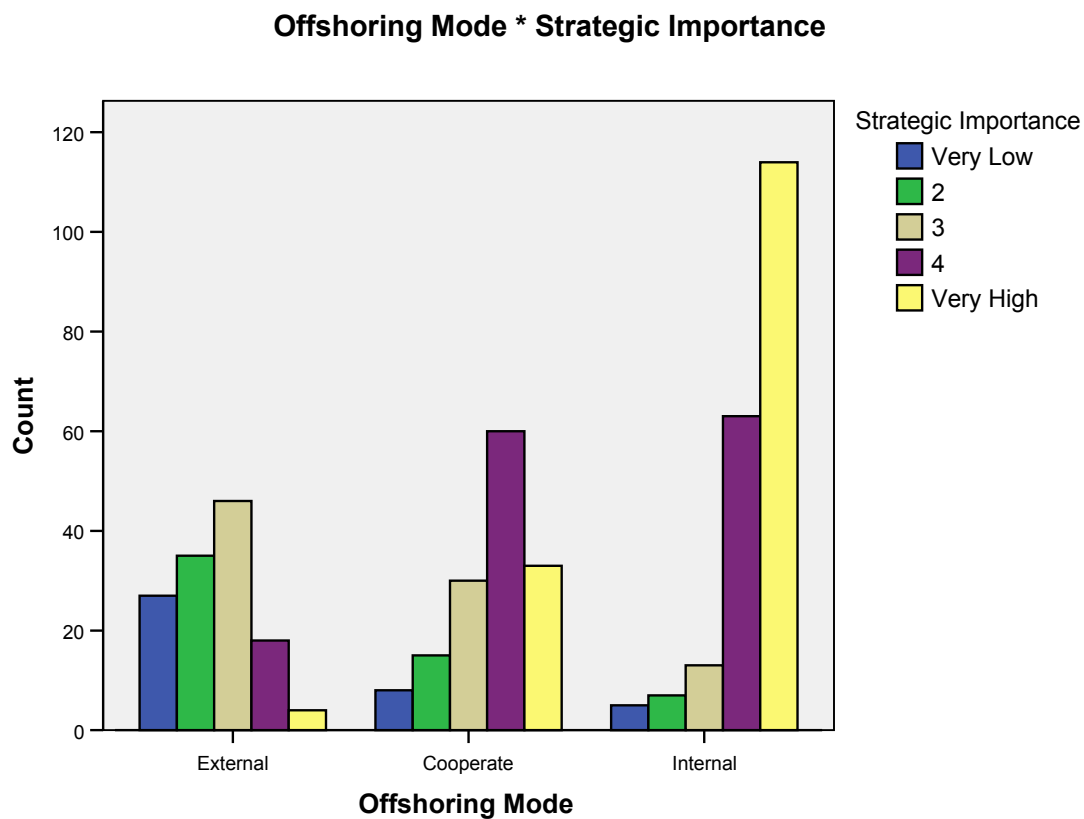
a) Strategic Importance

H2: The higher the strategic importance of the offshored service to the firm, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

This hypothesis was strongly supported by all of the regression models (multinomial, binomial, ordinal and ordinal-reduced) as the coefficient was positive and statistically significant at $p < 0.01$.

Fig 5.2 further provides evidence for the strong support for this hypothesis.

Fig 5.2 Offshoring Mode vs. Strategic Importance



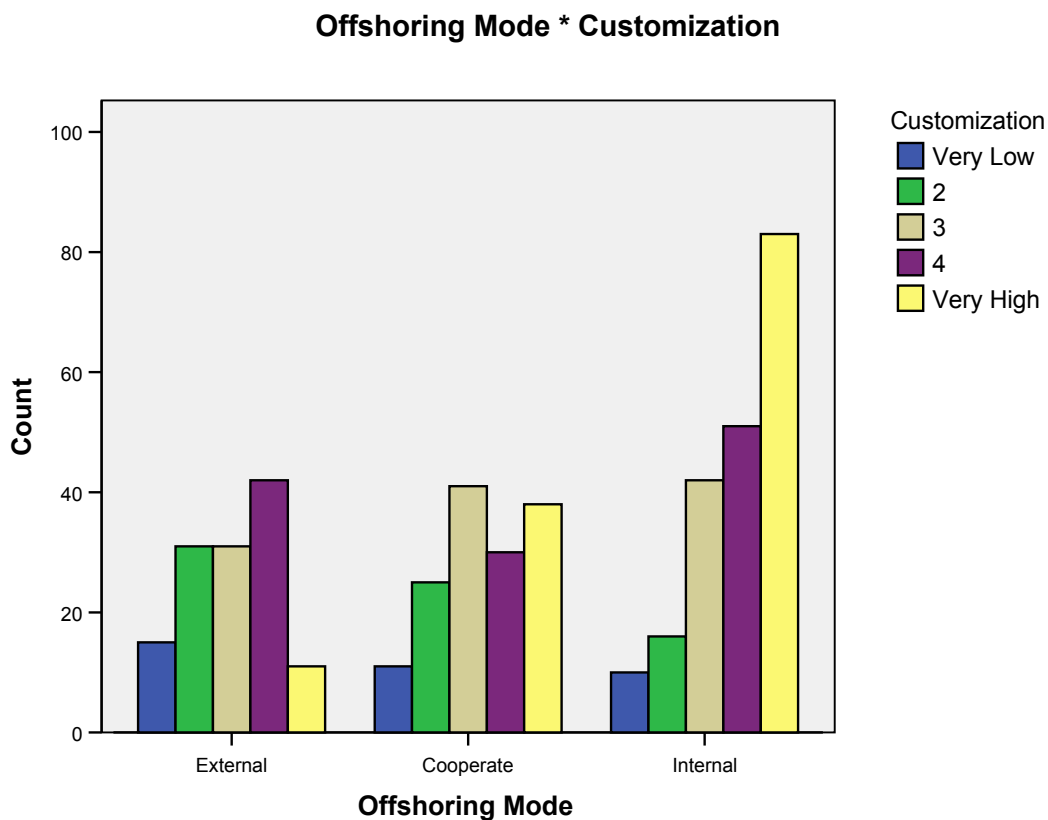
b) Customization

H3a: Increase in customization needs (asset specificity) for the service will not lead to firm using internal mode of offshoring.

Hypothesis H3a was tested using binomial regression (models D1 – D3) and was not supported

Also, fig 5.3 confirms that increase in customization does not lead to increase in preference for cooperative or external mode.

Fig 5.3 Offshoring Mode vs. Customization

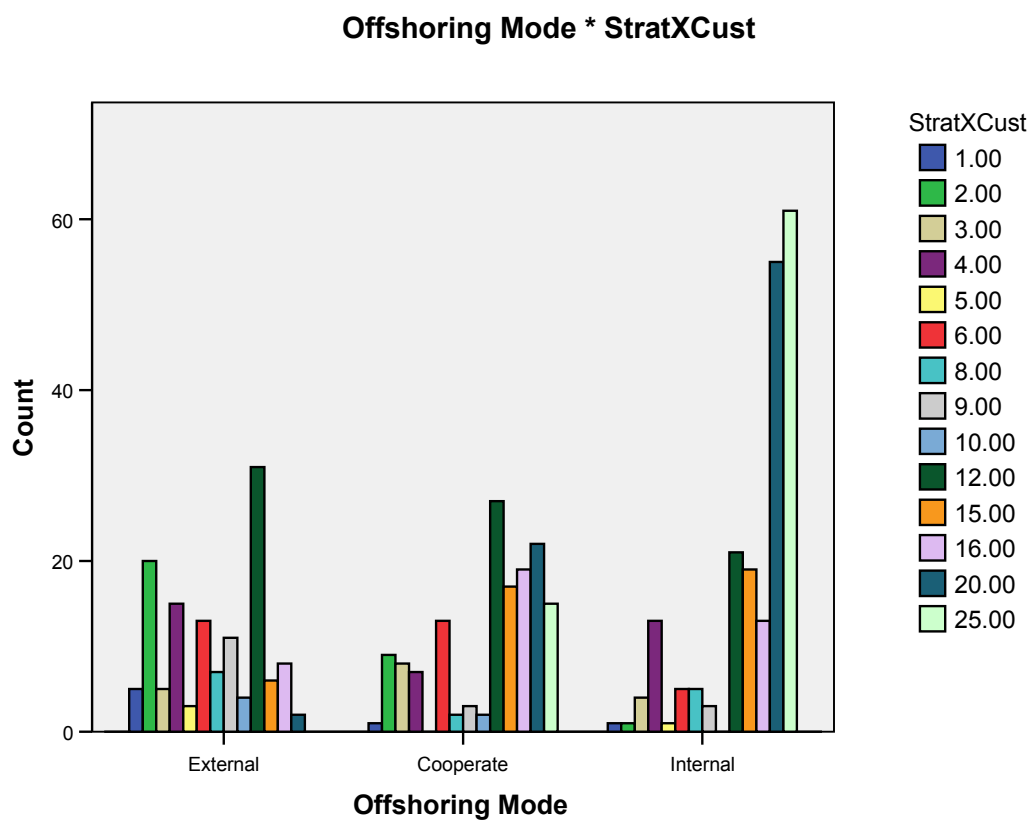


H3b: As the need for customization of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.

This hypothesis was strongly supported by all of the regression models (multinomial, binomial, ordinal and ordinal-reduced) as the coefficient was positive and statistically significant at $p < 0.01$.

Fig 5.4 provides further evidence for the strong support for this hypothesis.

Fig 5.4 Offshoring Mode vs. StratXCust



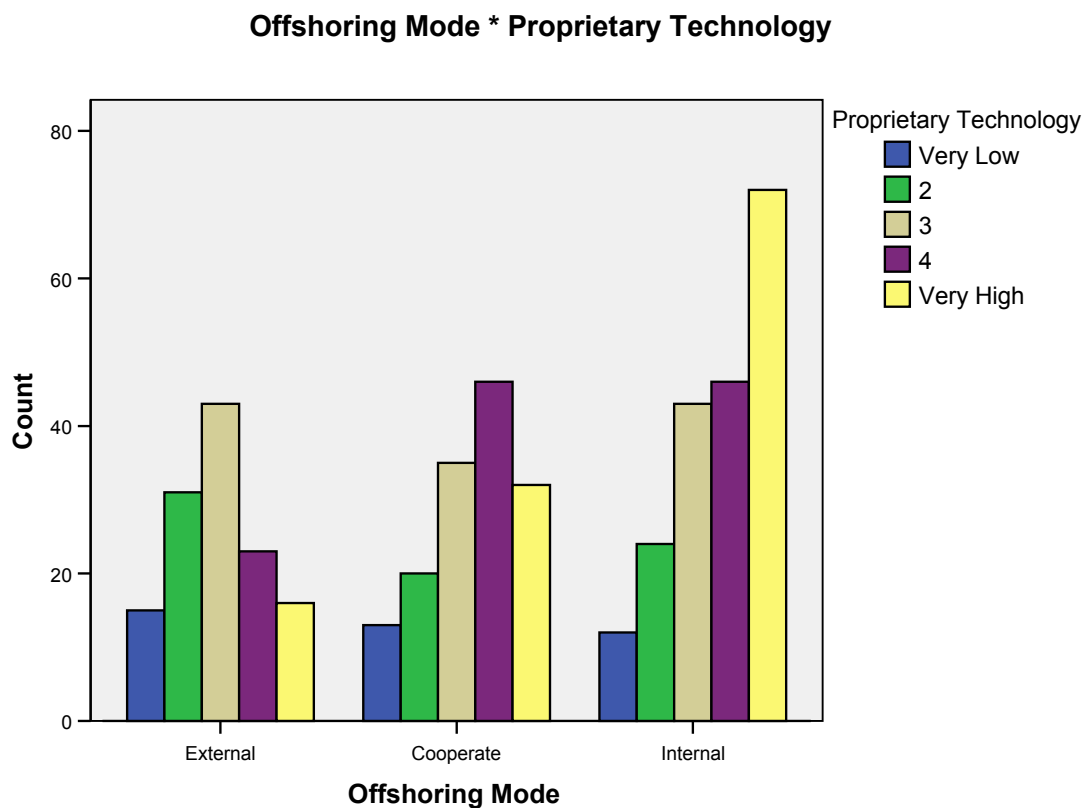
c) Proprietary Technology

H4a: Increase in proprietary nature of technology used in production/performance of the service, would not result in increase in firm using internal mode of offshoring.

Hypothesis H3a was tested using binomial regression (models D1 – D3) and was supported

Fig 5.5 provides further evidence for the strong support for this hypothesis.

Fig 5.5 Offshoring Mode vs. Proprietary Technology

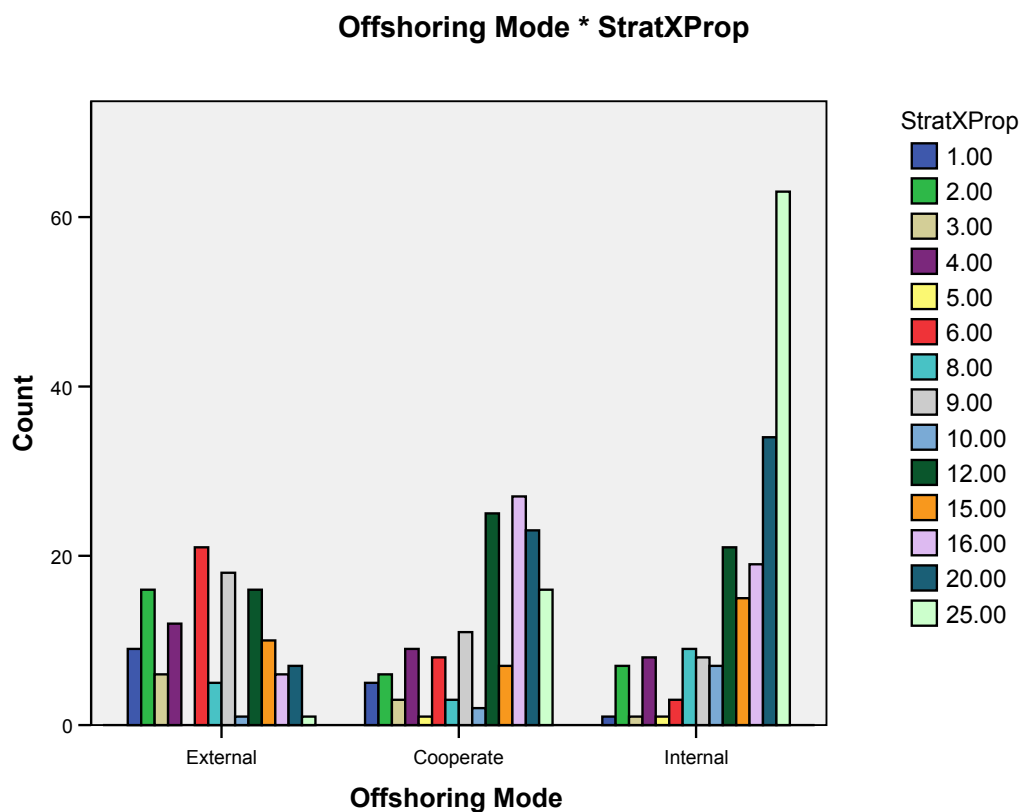


H4b: As the proprietary nature of technology used in production/performance of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.

Except for model A3, this hypothesis was strongly supported by all of the regression models (multinomial, binomial, ordinal and ordinal-reduced) as the coefficient was positive and statistically significant at $p < 0.01$. Coefficient of model A3 also, supports this hypothesis, but the coefficient was statistically significant at $p < 0.10$ (weak support).

Fig 5.6 provides further evidence for the strong support for this hypothesis.

Fig 5.6 Offshoring Mode vs. StratXProp



5.5.3 Causes (Motives)

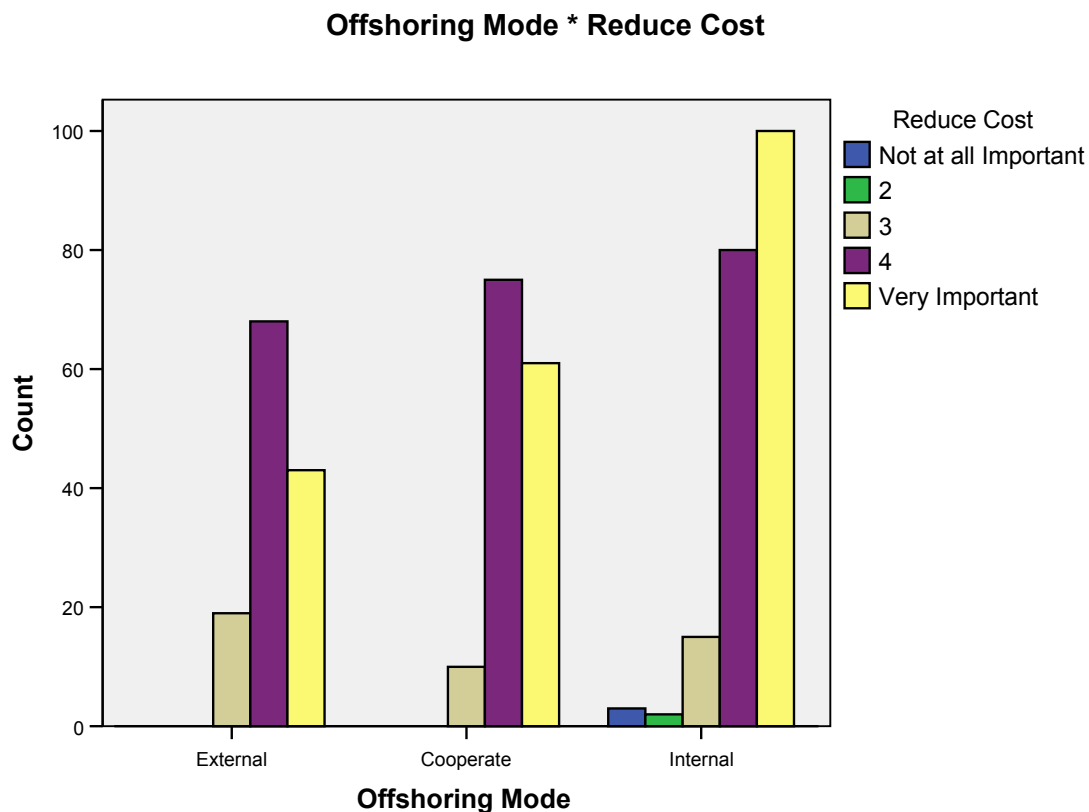
a) Cost reduction

H5: Firm's motive to reduce the cost of offshoring will not influence the firm's mode of offshoring.

This variable was not included in the reduced model. This hypothesis was supported by rest of the models, as the coefficient was not statistically significant in any of the regression models.

Also, fig 5.7 provides further evidence for the support for this hypothesis.

Fig 5.7 Offshoring Mode vs. Reduce Cost



b) Reduce Time

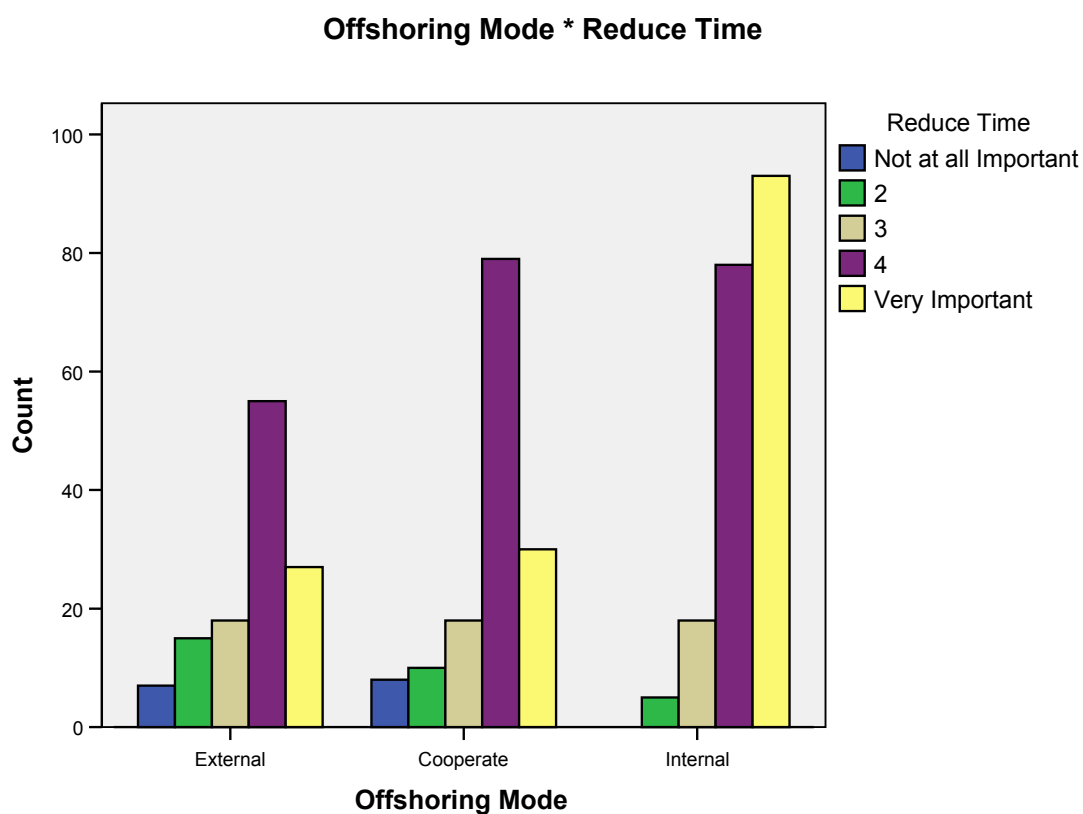
H6: The higher the firm's need to reduce the time in producing / performing the service, the greater the firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

This variable was not included in the reduced model. This hypothesis was not supported by any of the models. For models A1, A2, A3, C1, C2, C3, D1, D2, D3, F1, F2

and F3 the coefficient had opposite sign and was statistically significant in the opposite direction at $p < 0.01$. For model B3 the coefficient had the right sign (negative sign), but was not statistically significant.

Also, fig 5.8 provides further evidence for the lack of support for this hypothesis.

Fig 5.8 Offshoring Mode vs. Reduce Time



c) Asset seeking

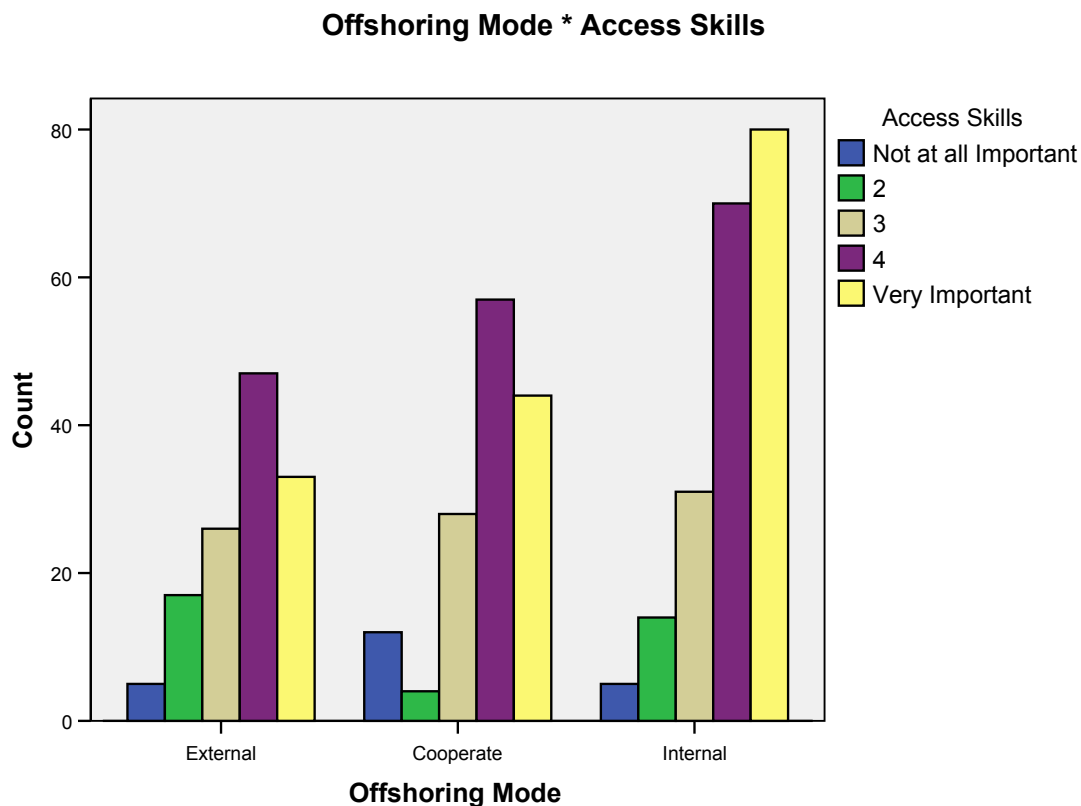
H7: The greater the firm's desire to access host country assets, the higher the firm's preference for an internal mode of offshoring over either a cooperative or

an external mode; and a preference for a cooperative mode over an external mode.

This variable was not included in the reduced model. This hypothesis was not supported by any of the models. For models B1, B2, B3, C1, C2, D2, F1, F2 and F3 the coefficient had opposite sign, but it was not statistically significant. For model A1, A2, A3, C3, D1, D3, E1, E2 and E3 the coefficient had the correct sign, but was not statistically significant.

Also, fig 5.9 provides further evidence for the lack of support for this hypothesis.

Fig 5.9 Offshoring Mode vs. Access Skills



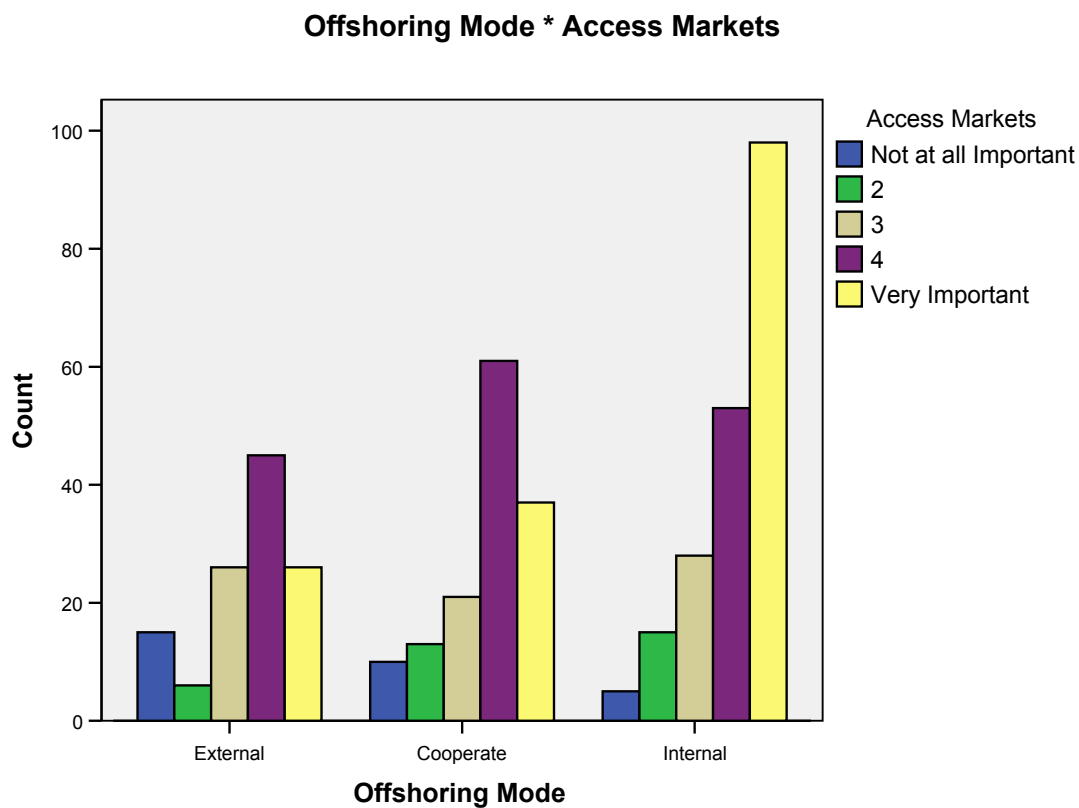
d) Access Market

H8: Increase in the firm's desire to access a foreign market would lead to increase in the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

Only model A3 provided weak support for this hypothesis, as the coefficient was positive and statistically significant at $p < 0.10$. Also, except for models B1, B2 and B3 rest of the models had the right sign (positive) for the coefficients, but the coefficient was not statistically significant. Overall we can conclude that this hypothesis was not supported.

Also, fig 5.10 provides further evidence for the lack of support for this hypothesis.

Fig 5.10 Offshoring Mode vs. Access Markets



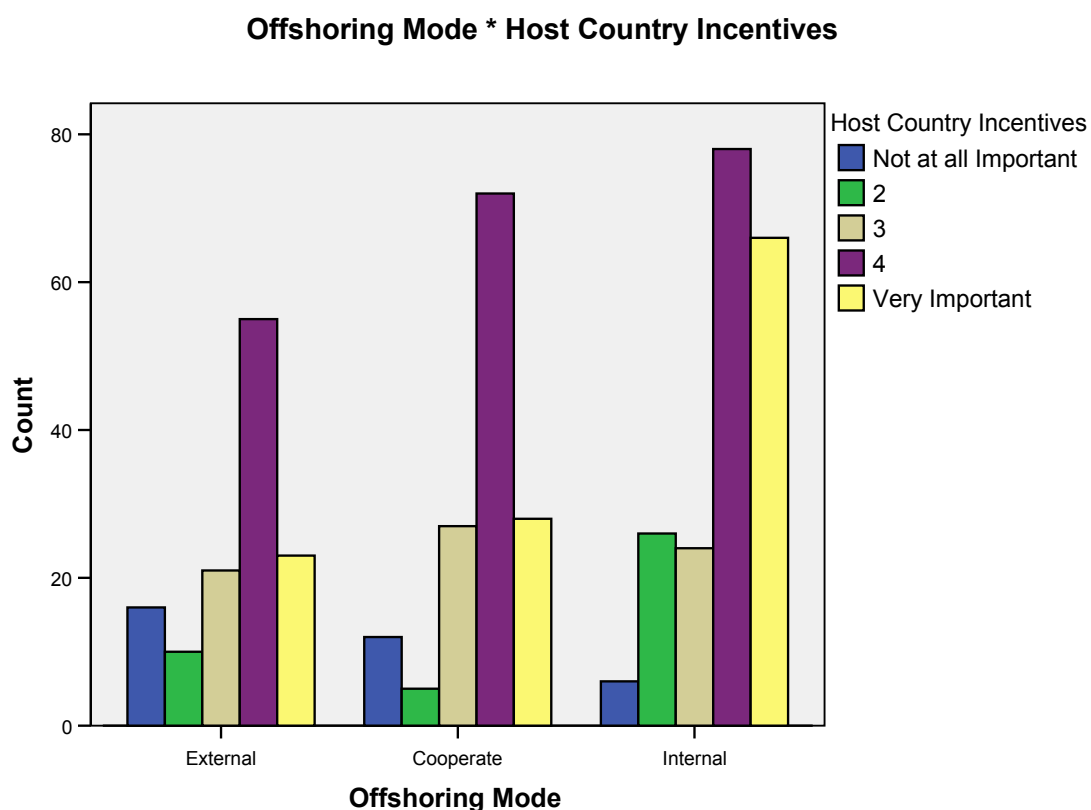
e) Host Country Incentives

H9: The greater the incentives from the host country government, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

This hypothesis was not supported. Moreover only models B1, B3, E2 and E3 had the right sign (positive sign) for the coefficients. Models F2 and G2 not only had opposite sign for the coefficients, but the coefficient was also statistically significant at $p < 0.10$. Rest of the models (A2, A3, B2, C1, C2, C3, D1, D2, D3, E1, F1, F3, G1 and G3) had opposite sign for the coefficients, but the coefficient was not statistically significant.

Also, fig 5.11 indicates lack of support for this hypothesis.

Fig 5.11 Offshoring Mode vs. Host Country Incentives



5.5.4 Concerns

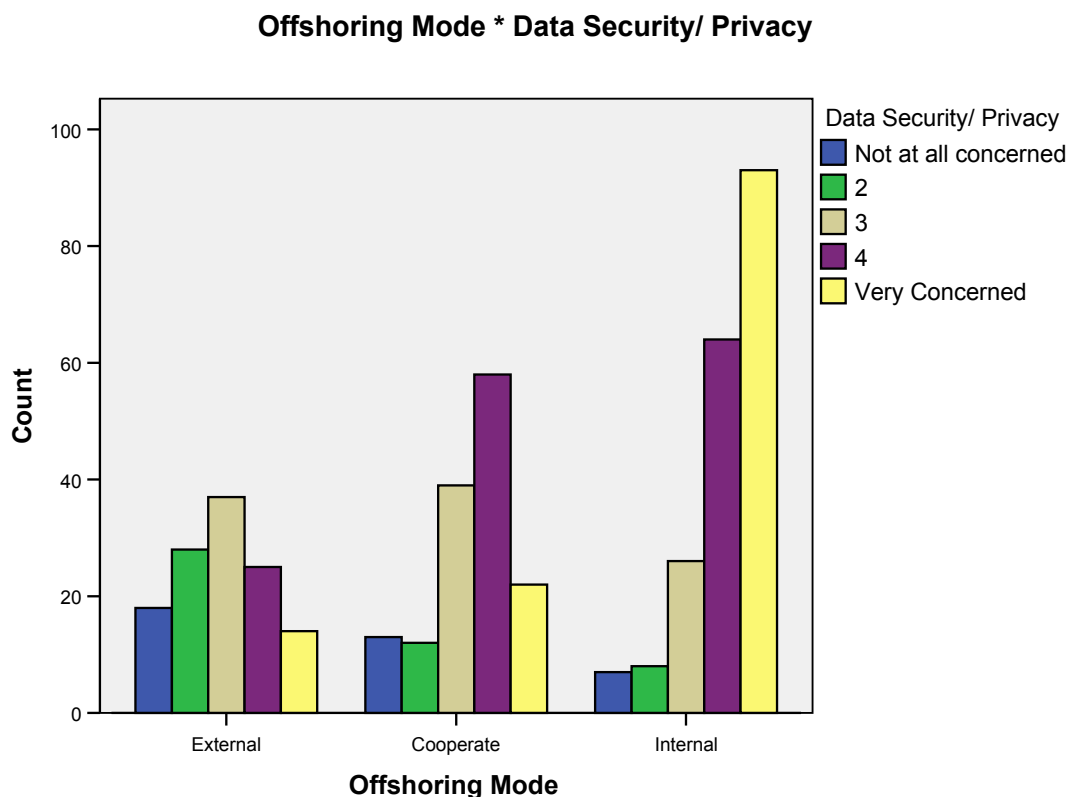
a) Data Security / Privacy

H10: The higher the firm's concern over data security/ privacy, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

Most of the models (A1, A2, A3, C1, C2, C3, D1, D2, D3, E1, F1, F2, F3, G1, G2 and G3) strongly supported this hypothesis, with positive coefficients and statistically significant at $p < 0.01$. Coefficient for model E3 was statistically significant at $p < 0.05$ and coefficient for model B1 and E2 was statistically significant at $p < 0.10$. Coefficient for model B2 and B3 had the right sign, but was not significant. None of the models had opposite signs for the coefficient for this variable and most of the models supported it strongly. Hence it can be concluded that this hypothesis was strongly supported.

Also, fig 5.12 provides further evidence for the support for this hypothesis.

Fig 5.12 Offshoring Mode vs. Data Security /Privacy



b) Intellectual Property Protection

H11: The higher the firm's concern over the presence and enforceability of laws respecting intellectual property rights in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

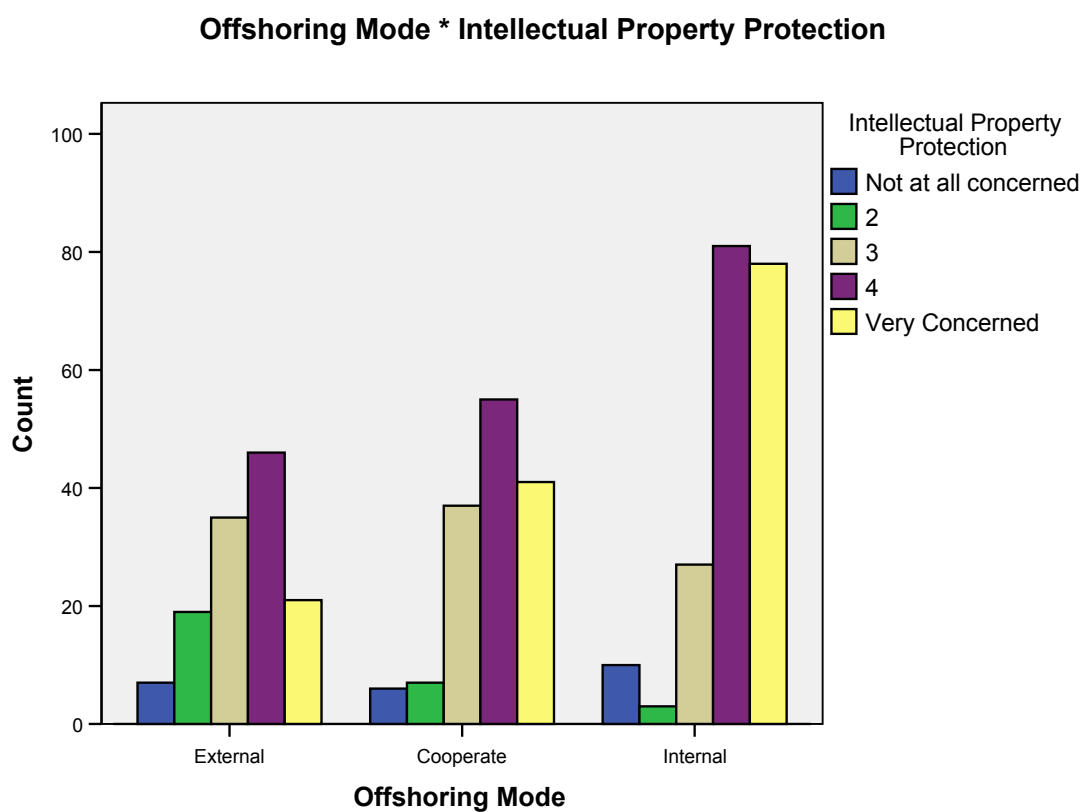
This hypothesis was not supported by any of the models. Only coefficient for model B3 had the right sign (positive), but the coefficient was not statistically significant.

Coefficient for the rest of the models (A1, A2, A3, B1, B2, C1, C2, C3, D1, D2, D3, E1,

E2, E3, F1, F2, F3, G1, G2 and G3) had wrong signs, but the coefficient was not statistically significant.

Also, fig 5.13 indicates lack of support for this hypothesis.

Fig 5.13 Offshoring Mode vs. Intellectual Property Protection



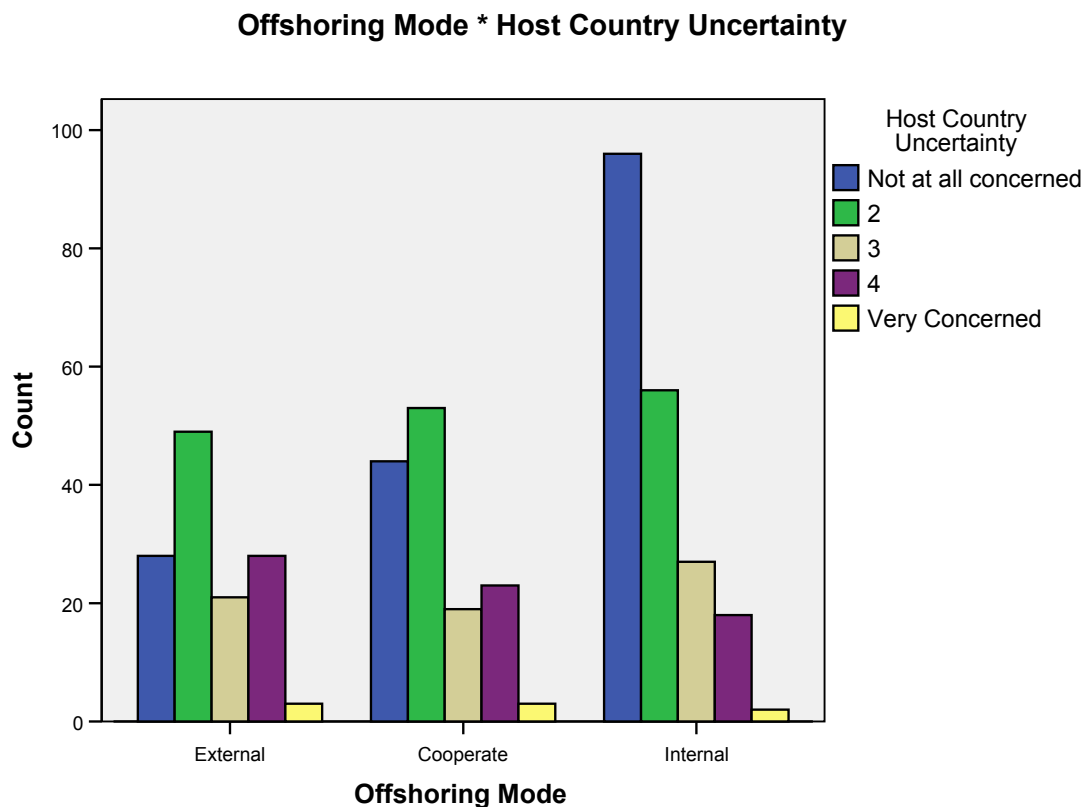
c) Host Country Risk

H12: Increase in the firm's perception of the host country risk will lead to increase in firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

This hypothesis was supported by models F1, F2 and F3 and the coefficient was statistically significant at $p < 0.05$. Also, models C1, C2 and C3 provided weak support for this hypothesis as the coefficient was statistically significant at $p < 0.10$. The coefficients for models A1 through B3, D1, D2, D3, E2 and E3 had the right sign, but the coefficients was not statistically significant. Only coefficient of model E1 had opposite sign, but the coefficient was not statistically significant. Hence it can be concluded that this hypothesis received weak support. This variable was not included in the reduced model.

Also, fig 5.14 indicates weak support for this hypothesis.

Fig 5.14 Offshoring Mode vs. Host Country Uncertainty



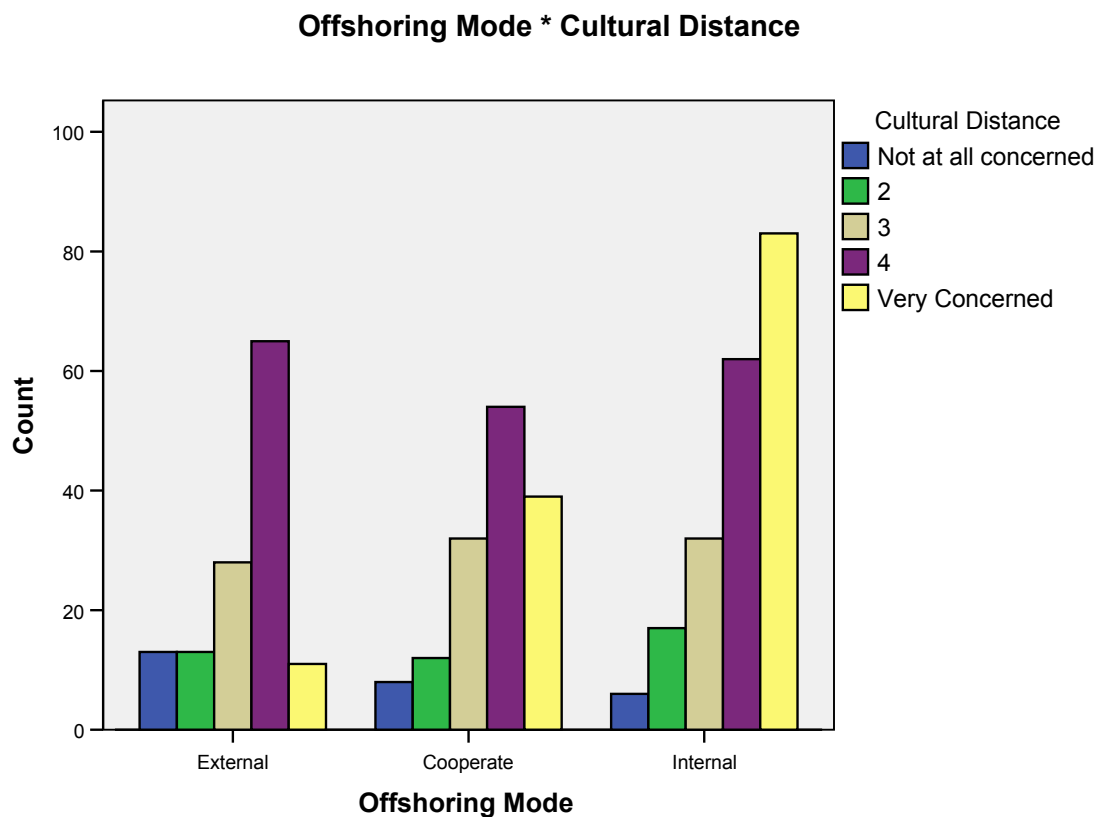
d) Cultural Distance

H13: The greater the firm's perception of the cultural distance between a firm's host country and home country the higher would be the likelihood of the firm using cooperative sourcing or external sourcing for global sourcing of services.

This hypothesis was not supported. Coefficient of none of the models had the correct sign for this variable. Coefficient of models A1, A2, A3, D1, D2 and F3 had opposite sign, but the coefficient was not statistically significant. Also, coefficient of models B1, B2, B3, C3 and D3 had opposite sign, and was statistically significant at $p < 0.10$. Moreover coefficient of models C1, C2, E1, E2, E3, F1 and F2 had opposite sign, and was statistically significant at $p < 0.05$. This variable was not included in the reduced model.

Also, fig 5.15 indicates lack of support for this hypothesis.

Fig 5.15 Offshoring Mode vs. Cultural Distance



e) Lack of Partners/ Vendors

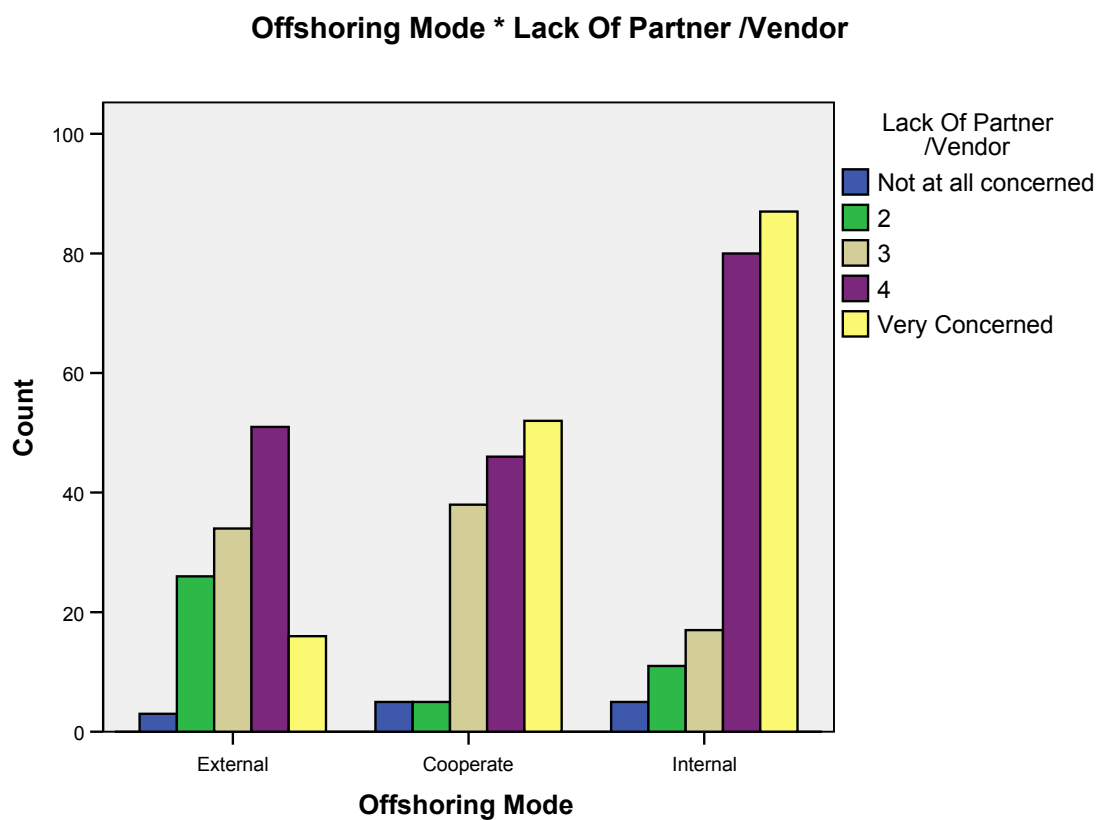
H14: The higher the firm's concern over lack of partners/ vendors providing the service in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

This hypothesis was strongly supported by models B1 through C3 and E1 through G3 and their coefficient was statistically significant at $p < 0.01$. Coefficient of the model

D1 was statistically significant at $p < 0.05$ and coefficient of the model D2 and D3 was statistically significant at $p < 0.10$. Model A1, A2 and A3 do not support this hypothesis, but the coefficient had proper sign. Hence it can be concluded that this hypothesis was supported.

Also, fig 5.16 provides further evidence for the support for this hypothesis.

Fig 5.16 Offshoring Mode vs. Lack of Partner / Vendor



5.6 SUMMARY

Table 5.16 and also table 5.17 shows summaries of all the models and results of hypothesis testing. Out of a total of 16 hypotheses (including the sub hypotheses 3b and 4b), eight hypotheses were supported and eight did not receive support. Out of the eight hypotheses that were supported, four hypotheses i.e. hypothesis related to Strategic Importance, StratXCust, StratXProp and Data Security / Privacy received strong support (coefficient statistically significant at $p < 0.01$), additional three received support (coefficient statistically significant at $p < 0.05$), these were hypothesis related to Proprietary technology, Reduce cost and Lack of Partner /Vendor. Hypothesis related to host country uncertainty received weak support (coefficient statistically significant at $p < 0.10$).

Out of the eight hypotheses that were not supported, two hypotheses, hypothesis related to reduce time and cultural distance, had coefficient with opposite sign and the coefficient was significant. The remaining six hypotheses, hypothesis related to employees (firm size), customization, access skills, access markets, host country incentives and intellectual property protection were not supported, but they did have some models with coefficient with the correct sign.

The following chapter discusses findings of the study and conclusions. Also, research implications, managerial implications and limitations and future directions of the study are discussed.

Table 5.17: Hypotheses summary for all the methods of regression

Sr. No.	Hypothesis	Proposed sign /effect (+/-)*	Results of various regressions†
	Capabilities		
1	H1: As firm size increases, firms would prefer an internal mode of offshoring over either a cooperative or an external mode.	Internal mode preferred	N
	Characteristics		
2	H2: The higher the strategic importance of the offshored service to the firm, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+	SS
3	H3a: Increase in customization needs (asset specificity) for the service will not lead to firm using internal mode of offshoring.	Internal mode will not be preferred	N
	H3b: As the need for customization of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.	+	SS
4	H4a: Increase in proprietary nature of technology used in production/performance of the service, will not result in increase in firm using internal mode of offshoring.	Internal mode will not be preferred	S
	H4b: As the proprietary nature of technology used in production/performance of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.	+	SS
	Causes (Motives)		
5	H5: Firm's motive to reduce the cost of offshoring will not influence the firm's mode of offshoring.	No effect	S

6	H6: The higher the firm's need to reduce the time in producing / performing the service, the greater the firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.	-	NSOD
7	H7: The greater the firm's desire to access host country assets, the higher the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+	N
8	H8: Increase in the firm's desire to access a foreign market would lead to increase in the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+	N
9	H9: The greater the incentives from the host country government, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+	N
	Concerns		
10	H10: The higher the firm's concern over data security/ privacy, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+	SS
11	H11: The higher the firm's concern over the presence and enforceability of laws respecting intellectual property rights in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+	N
12	H12: Increase in the firm's perception of the host country risk will lead to increase in firm's preference for an external mode of offshoring over	-	WS

	either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.		
13	H13: The greater the firm's perception of the cultural distance between a firm's host country and home country the higher would be the likelihood of the firm using cooperative sourcing or external sourcing for global sourcing of services.	-	NSOD
14	H14: The higher the firm's concern over lack of partners/ vendors providing the service in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.	+	S

*+ refers to the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

- refers to the firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

† N –Not supported, NSOD – Not supported but significant in the opposite direction, SS –Strong Support (p<0.01), S- Supported (p<0.05), WS – Weak Support (p<0.10)

CHAPTER SIX

DISCUSSION AND CONCLUSION

Purpose of this study was to develop and test a conceptual framework based primarily on existing IB and management theories, to test the effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services.

Because of paucity of research on mode of offshoring of services in IB and Management field, and also to increase the robustness of this study, the researcher looked at research on mode of offshoring of services, in MIS field and also research on 'mode of entry' in IB and Management field. After review of literature on offshoring mode in IB and Management field and MIS field and also after reviewing entry mode literature in IB and Management field, TCA and RBV were found suitable to explain mode of offshoring of services.

Combining main tenets of both TCA and RBV, a 4Cs framework was developed and tested by collecting data from managers of large US corporations. Various regression methods were used to analyze the results.

This chapter discusses findings of the study, research implications, managerial implications and limitations and future directions of the study.

6.1 DISCUSSION OF FINDINGS

This section discusses findings of the results of hypotheses testing of effects of 4Cs on mode of offshoring.

6.1.1 Capabilities

a) Firm size

H1: As firm size increases, firms would prefer an internal mode of offshoring over either a cooperative or an external mode.

This hypothesis was not supported by any of the regression models (multinomial, binomial and ordinal). Agarwal and Ramaswami (1992) tested a similar relationship between level of control and firm size and their results supported a direct positive relationship between level of control and firm size, whereas Ekeledo (2000) argues that firm size may not be critical in selecting an appropriate entry mode for some non-separable service firms.

Possible reasons for lack of support for this hypothesis could be that this study included only large firms, if this study would have included small and medium firms then probably this hypothesis could have been supported. Another reason could be that this hypothesis has been strongly supported in the context of entry mode of manufacturing firms, since services are less capital intensive than goods (Erramilli and Rao 1993), minimum firm size needed for the firm to choose internal mode of offshoring is substantially lower than that for manufacturing of goods.

6.1.2 Characteristics

a) Strategic Importance of the Offshored Service

H2: The higher the strategic importance of the offshored service to the firm, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

This hypothesis was strongly supported by all of the regression models (multinomial, binomial, ordinal and ordinal-reduced). Both the TCA and RBV based studies have reached similar conclusion for this variable (strategic importance).

b) Customization

H3a: Increase in customization needs (asset specificity) for the service will not lead to firm using internal mode of offshoring.

H3b: As the need for customization of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.

Hypothesis three had two parts; the first part (H3a) argued that increase in customization needs (asset specificity) for the service will not lead to firm using internal mode of offshoring. This hypothesis was not supported by all the relevant models. TCA supports firms using higher level of control over foreign operations with increase in asset specificity, which is opposite to hypothesis 3a, but at the same time Coase (1937) argued that increase in asset specificity alone may not be enough to ignore market based transaction. Also, according to RBV, core activity must be performed internally and supplementary services may be performed internally or externally (Prahalad and Hamel, 1990). Hence even with the increase in the customization needs (asset specificity) for the service, the firm may not want to internalize the production / performance of the service, if the service is not strategically important to the firm. This is exactly the point made by both hypothesis 3a and 3b. Hypothesis 3b posits that increase in customization needs (asset specificity) for the service will lead to increase in firm's preference for an internal mode of offshoring over either a cooperative or an external mode (and preference for a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high. And this hypothesis was strongly supported by all of the regression models (multinomial, binomial, ordinal and ordinal-reduced).

c) Proprietary Technology

H4a: Increase in proprietary nature of technology used in production/performance of the service, would not result in increase in firm using internal mode of offshoring.

H4b: As the proprietary nature of technology used in production/performance of the service increases, the firm would prefer an internal mode of offshoring over either a cooperative or an external mode (and prefer a cooperative mode over an external mode), but only when the strategic importance of the offshored service is high.

Several researchers (Caves, 1982; Davidson, 1982; Davidson and McFetridge, 1984; Stopford and Wells, 1972; Telesio, 1979) have found a positive relationship between research and development expenditures (which generate proprietary knowledge) and direct investment by firms in foreign operations.

Both TCA and RBV advocate the use of sole ownership for proprietary technology, but a firm needs to balance the need for integration with the costs of controlling the hierarchical structure, when protecting its proprietary know-how (Erramilli & Rao, 1993; Hennart, 1989).

A firm may select sole ownership as an entry mode, in order to protect the proprietary content of a product (Anderson and Gatignon, 1986). This argument could be extended to services and hence depending upon the need to protect the proprietary content of the services or in other words if the service using proprietary technology is of strategic importance to the firm, then the firm would be more likely to internalize the production / performance of the service. This argument was proposed using hypothesis 4a and 4b and both the hypotheses were supported.

6.1.3 Causes (Motives)

a) Cost Reduction

H5: Firm's motive to reduce the cost of offshoring will not influence the firm's mode of offshoring.

This study hypothesizes that, even though cost reduction is a primary driver for the initiation of the process of offshoring, by itself the motive of cost reduction is unable to predict the mode of offshoring. As firms could realize their cost savings objective by choosing either mode of operation. Various surveys (Duke University CIBER/ Archstone Consulting, 2005; Mann 2003; Yourdon 2004; Ventoro Consulting 2005) have reported that firms achieve cost savings from offshoring operations irrespective of the mode of offshoring. Also, there are other factors such as service characteristics and managerial concerns that influence the mode of offshoring. This hypothesis was supported.

b) Reduce Time

H6: The higher the firm's need to reduce the time in producing / performing the service, the greater the firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

Hypothesis six posited that if a firm wants something done fast or is under time pressure to produce a service, it will use external or cooperative mode of sourcing. This hypothesis was not supported; one of the reasons could be that when a firm is under time

pressure to produce a service or launch a new service, that service may be strategically important to the firm and hence the firm may not want to divulge information related to the production of that service to outside vendors or partners. This may also explain the statistically significant coefficient with opposite signs for some models (A1, A2, A3, C1, C2, C3, D1, D2, D3, F1, F2 and F3).

c) Access Skills

H7: The greater the firm's desire to access host country assets, the higher the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

The lack of support for this hypothesis could be attributed to rise of contractual labor and fast changing technological environment. These days if a firm wants to access a certain skills it does not have to hire individuals with those skills, instead it can get those skills on a contractual basis from a vendor. Also because of rapidly changing technological environment it is not economical for firms to develop in-house talent as by the time the in-house talent catches up with the technology, it (the technology) might become outdated. This is especially true for firms doing business in computers, electronics and telecommunication fields.

d) Access Market

H8: Increase in the firm's desire to access a foreign market would lead to increase in the firm's preference for an internal mode of offshoring over either a

cooperative or an external mode; and a preference for a cooperative mode over an external mode.

The lack of support for this hypothesis could be attributed to the fact that market seeking motive is not the primary motive in offshoring. Results of various surveys seem to support this view. Access to new markets was cited as a motive only by 25% of the respondents (Duke University CIBER/Archstone Consulting, 2005). Other studies (Mann, 2003; Yourdon, 2004; Ventoro, 2005) have reported similar results. Since market seeking motive is not the primary motive in offshoring, firms may not want to commit resources towards this objective.

e) Host Country Incentives

H9: The greater the incentives from the host country government, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

Hypothesis nine posited that host country government incentives are tied to mode of operation and usually higher incentives are awarded by host country government for higher involvement by the foreign firm. This hypothesis was not supported. Possible reason for lack of support for this hypothesis could be that since offshoring of services is not as capital intensive as offshoring of goods, firms may not realize enough financial gains from offshoring of services to justify higher involvement in the foreign operations.

Also, firms may give more importance to the educational level of the workforce and telecommunication infrastructure of the host country than host country government incentives.

6.1.4 Concerns

a) Data Security/ Privacy concerns

H10: The higher the firm's concern over data security/ privacy, the higher is the likelihood of the firm opting for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

Online fraud is on the rise and firms are increasingly becoming concerned about the security and privacy of financial and other sensitive data. The direct relationship between the concern over data security/ privacy and the level of control as proposed by hypothesis ten was strongly supported.

b) Intellectual Property Protection

H11: The higher the firm's concern over the presence and enforceability of laws respecting intellectual property rights in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

This hypothesis was not supported by any of the models. Possible reason for lack of support of this hypothesis could be that various host countries have started enforcing intellectual property rights as a result of the various efforts by the World Trade Organization (WTO) and hence intellectual property rights may not be as big a concern as it used to be. As part of the Uruguay Round, an agreement was made to harmonize intellectual property laws worldwide (Cheek, 2001). According to McGaughey, Liesch and Poulson (1999), improved regulation and innovative systems of protecting intellectual property has reduced intellectual property infringement. Hence all these factors may reduce the firm's concern over intellectual property rights and this may explain the lack of support for this hypothesis.

c) Host Country Risk

H12: Increase in the firm's perception of the host country risk will lead to increase in firm's preference for an external mode of offshoring over either a cooperative or an internal mode; and a preference for a cooperative mode over an internal mode.

This hypothesis received weak support. Host country risk is declining, firstly because of globalization, most of the countries that are involved in global trade are interdependent and hence governments are unwilling to create unfavorable business environments for foreign firms or goods or services in fear of retaliation by the trading partners. Secondly each successive round of WTO has increased the level of fair trade and also provided other means of conflict resolution than retaliation.

c) Cultural Distance

H13: The greater the firm's perception of the cultural distance between a firm's host country and home country the higher would be the likelihood of the firm using cooperative sourcing or external sourcing for global sourcing of services.

The inverse relationship between cultural distance between a firm's host country and home country and preference for internalization as posited by hypothesis thirteen was not supported. The empirical evidence in support of inverse relationship between cultural distance and preference for internalized mode is mixed, some studies support (Gatignon and Anderson, 1988) the inverse relationship, some report contradictory results (Anand and Delios, 1997; Padmanabahn and Cho, 1996) and some studies are inconclusive (Contractor and Kundu, 1998a, 1998b).

The lack of support for the inverse relationship between cultural distance between a firm's host country and home country and preference for internalization reflects the fact that because of cut throat global competition businesses are willing to setup subsidiaries in countries that are not culturally similar to their home countries for the sake of cutting costs and to gain competitive advantage and/or to neutralize threat posed by competitors. Also, even though national cultures may be different, because of globalization, corporate cultures are becoming more westernized.

e) Lack of reliable partners/ vendors

H14: The higher the firm's concern over lack of partners/ vendors providing the service in the host country, the greater the firm's preference for an internal mode of offshoring over either a cooperative or an external mode; and a preference for a cooperative mode over an external mode.

The final hypothesis was supported. As the number of partners/ vendors providing the service (needed by the firm) increases, the firm would have more choice and would be less concerned about opportunistic behavior (by the partners/ vendors) and the firm would also have higher bargaining power, hence the firm would be more inclined to use outside partners/ vendors to procure that service. But when there is scarcity of reliable partners/ vendors in the host country the firm will have no choice but to internalize the offshoring operation.

6.2 CONTRIBUTIONS OF THE STUDY

This study makes both academic and practical contributions and enhances the existing research on offshoring.

6.2.1 Academic contributions

This is perhaps the first study in IB and management field to study mode of offshoring of services and also, possibly the first study in IB and management field to use only single-item measures. This study also pointed out the misuse of interaction terms.

As discussed under section 1.3 ‘Research motivation’, the literature on mode of offshoring, in IB and management field, is too scanty and also does not cover a very popular mode of offshoring, cooperative sourcing. The paucity of research barely qualifies as scratching the surface in terms of exploring such an important issue.

Also, it is very clear from section 1.4 ‘Scope of the study and Unit of analysis’, that this study has a very broad scope and is not limited to just one particular mode of offshoring or one particular industry. No attempt is made in this study to somehow narrow the scope and prove that this is the only study involved in researching the topic under consideration.

Hence we can conclude that this is perhaps the first study, in IB and management field, to exclusively focus on the factors influencing the mode of offshoring of services and also to look at internal, external and cooperative modes of offshoring. Furthermore, the generalizability of the results of this study is quite high, since this study covers various industries.

Also this study identified TCA and RBA as theories that have been used to explain mode of offshoring in MIS and these same theories have been used in IB and management field to explain the mode of entry. According to TCA, external factors (market failure) drive firm’s structure, whereas per RBV, internal factors (firm’s strategy and resources) drive firm’s structure. TCA generally favors low control entry modes (Anderson and Gatignon, 1986) and RBV favors high control mode (Gatignon and Anderson, 1988). Hence studying offshoring mode using both TCA and RBV helps in better understanding of the phenomena, as TCA and RBV are not contradictory but complementary theories (Kogut and Zander, 1993; Madhok, 1997; Williamson, 1999).

This study also introduced key literature in MIS field on offshoring mode to IB and Management field.

A secondary contribution of this study to the IB and Management field is to introduce to the IB and Management field the appropriateness of single-item measures to self reported surveys. Although most of the studies in IB and Management field include a mix of single-item and multiple-item measures, this is the first study to use only single-item measures. Also, single-item measures in IB and Management field have been used without testing their reliability. This study introduces to IB and Management field, the methods used to evaluate reliability of single-item measures.

This study also looked at the methods used by researchers to deal with multicollinearity in interaction terms and found that none of the methods used by scholars reduce multicollinearity. The most puzzling aspect is that the claims made by these methods (to reduce multicollinearity) were not investigated by the scholars using them, also these studies (the studies using wrong methods to reduce multicollinearity) were published in top journals.

6.2.2 Managerial implications

The 4Cs framework proposed in this study is a simple straight forward framework, which has very high practical value and managers can relate to the findings.

Aharoni (1966) and Goodnow (1985) argue that managers often use crude and unsophisticated methods when making decisions such as entry mode in international markets. Also, Buckley and Chapman (1997) argue that managers do not look at individual items, but look at the big picture and managerial decisions are based on

perceptions of transaction costs and not on computation of fully recognized transaction costs. This study supports their views and argues that since managerial perceptions are captured better by single-item measures, this study has very high practical value for Managers.

Most of the studies on entry mode in IB and Management field use either TCA or RBV to explain the modal choice, whereas this study uses both TCA and RBV. A study based on TCA might give the impression to the manager that entry mode decision is either make or buy, since TCA is not effective for polytomous choices (e.g. internal, external and shared control modes), but is effective only for dichotomous choices (e.g. internal vs external modes) (Gatignon and Anderson 1988; Erramilli and Rao 1993). Also, TCA emphasizes transactions or contracts and ignores firm capabilities (Madhok, 1996). On the other hand, if the manager uses an entry mode study based only on RBV, then he might not look beyond firm resources.

Since, TCA focuses on cost minimization (an important driver of offshoring), and RBV emphasizes resource acquisition and deployment (also an important factor for offshoring). This study argues that TCA and RBV are complimentary theories and together they are more useful to managers than each of these theories on their own. Hence a study based on both TCA and RBV provides a better framework to the manager to identify specific factors to consider when selecting offshoring mode.

Also, the results of this study show that even though cost efficiency is the primary driver for offshoring, managers should pay attention to strategic objectives of the firm, when deciding the mode of offshoring. Appropriate mode is the one that balances cost efficiency with long term strategic objectives of the firm. Managers should also balance

firm's motives for offshoring with the firm's concerns over offshoring and choose an appropriate mode. Offshoring performance (especially financial performance) of the firm is very much dependent upon the offshoring mode and hence managers should give very high importance to the decision of mode of offshoring.

Finally, Managers from various industries would find this study useful as this study covers various industries and also the factors (influencing the mode of offshoring) considered in this study are very generic and easily applicable to most of the industries.

6.3 LIMITATIONS OF THIS STUDY

A convenience sample was used in this study, resulting in limitations to the generalizability of the findings of this study to the population. According to US Census Bureau, in 2004 there were 17,047 firms in the US employing more than 500 employees (large firms). Various attempts were made to get a breakdown of this number (17,047) by different industries. Even US Census Bureau's breakdown of the total number of firms with more than 500 employees (by different industries) did not add up to 17,047 (it was significantly higher, since many firms are counted multiple times, as they are in multiple industries). A breakdown by different industries would have helped to create a sample reflecting the population, but in the end, a convenience sample was used for this survey. Also, it is very difficult and time consuming to collect email addresses of top executives (CEO, CIO, CFO, President, Vice President and divisional or business unit heads) of each and every firm.

Convenience sampling has been used by other studies (Erramilli and Rao, 1990, 1993) to test entry mode choice of service firms. Also, according to Hunt (1991), non-

probability sampling technique (for ex. convenience sampling) can be used to test a theory. Since this is an exploratory study, trying to test applicability of TCA and RBV to mode of offshoring, convenience sampling should suffice.

Another limitation of this study is that it explores only the effects of 4 Cs (Capabilities, Characteristics, Causes and Concerns) on mode of offshoring of services. In addition to 4Cs, there are numerous factors related to the firm, partner / vendor, host country, home country and others factors that can influence the mode of offshoring of services. Although this is a valid limitation, it is not practical for one study to look at all the possible factors affecting mode of offshoring.

6.4 DIRECTIONS FOR FUTURE RESEARCH

IB and Management scholars have recently begun paying attention to the growing phenomena of offshoring. Offshoring is a vast and complex topic, and no single theory can explain the phenomena of offshoring. The researcher feels that offshoring can be better studied by subdividing it into five parts (Why, What, Where, How and Performance). First part (why to offshore) would deal with motives for offshoring. Second part (what to offshore) would deal with firms deciding which services they want to maintain in-house and which they want to offshore. Third part would deal with 'where' to offshore, this would address the location decision (attractiveness of a foreign country for offshoring). Fourth part would deal with 'how' to offshore (mode of offshoring). Final Part would deal with analyzing performance of the firms involved in offshoring.

Given the lack of literature on offshoring of services in IB and Management field, the researcher feels that all the aspects of offshoring (Why, What, Where and How) have great potential for research.

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APPENDICES

APPENDIX A – Sample Email, Cover letter and Online Survey 189

APPENDIX B – Respondent Profile 200

APPENDIX A

SAMPLE EMAIL

From: Rutgers Business School [mailto:apore@pegasus.rutgers.edu]
Sent: Wednesday, May 30, 2007 7:57 PM
To: "Offshoring Research Project - Rutgers Business School"
Subject: Rutgers Business School - Invitation to Participate in Offshoring Survey

Dear Sir / Madam,

Offshoring Research Project of Rutgers Business School is conducting a survey of executives who are involved in the decision making process of offshoring of services. This survey is designed to better understand the motives, concerns and other factors influencing the process of offshoring of services.

Your response is completely confidential. Aggregated responses will be used for academic research only. Completion of this survey should take you between 5 to 15 minutes.

Please click on the following link to go to the survey.

www.business.rutgers.edu/orp/surveys/os11

Thank you for participating in the survey.

Offshoring Research Project
Rutgers Business School
orp@business.rutgers.edu

If you do not wish to receive this email, then we apologize for the inconvenience. Please [click here to unsubscribe](#). If you have any questions about this survey, please send an email with your questions to orp@business.rutgers.edu

Online Survey

Cover Page

Survey of Executives involved in Offshoring of Services

This is a survey of executives who are involved in the decision making process of offshoring of services. This survey is designed to collect information regarding the motives, concerns and other factors influencing the process of offshoring of services.

Your response is completely confidential. Aggregated responses will be used for academic research only. Your response is critical and your participation much appreciated.

Please fill out the following questionnaire as accurately as possible. In some cases educated approximations will do. Completion of the questionnaire should take you between 5 to 15 minutes. By clicking on the link at the end of this survey you will receive an executive summary of overall aggregated findings and invitation to possible future conferences organized by Offshoring Research Project of Rutgers Business School.

Thank you for participating in the survey. Please [click here](#) if you need assistance or have questions regarding this survey.

Offshoring Research Project
Rutgers Business School
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Offshoring

“Offshoring” is the relocation of production of services to a lower cost overseas location.

Services which are produced / performed overseas are referred to as **Offshored Services**.

The country where offshored services are produced / performed is referred to as **Host Country / Offshored Destination**.

Offshored services could be produced / performed overseas (outside United States (US)) either:

- by your firm’s foreign subsidiary / division OR
- in cooperation (joint venture, alliance and / or licensing arrangement) with a foreign vendor or US vendor's foreign subsidiary / division OR
- by an independent third party foreign vendor or US vendor's foreign subsidiary / division

Is your firm currently involved in Offshoring of services?

Yes

No

(If Yes continue, If No go to Page 9)

Demographics

1.1) Industry (Select only one)

- Banking, Finance, Insurance Law and Real Estate
- Healthcare
- Information and Communications Technology
- Manufacturing
- Other Services
- Other

1.2) Total number of employees worldwide (approximately)

- 501 - 1,000
- 1,001 - 5,000
- 5,001 - 10,000
- 10,001 - 50,000
- 50,001 - 100,000
- over 100,000
- Don't Know / Not Applicable

1.3) Offshored Service - Pick **only one** service or function that your firm has "offshored"(i.e., this service or function is performed / produced overseas).

- Data Entry
- Back Office (Accounting, Billing, Payroll, etc.)
- Information Technology (IT) Services (Software development and maintenance, Website hosting and maintenance, Data backup and storage, etc.)
- Business Processes (Finance, Insurance, etc.)
- Research and Development
- Customer Support (Call center, Tech support, etc.)
- Other

Offshored Service – The offshored service you selected as a response to the previous question, from this point forward will be referred to as Offshored Service. Please answer the following questions based on the Offshored Service you selected.

2.1) Offshored Service Sourcing Mode – Offshored Service is currently being produced / performed overseas (outside United States (US)): (Select only one)

- by your firm's foreign subsidiary / division
- in cooperation (joint venture, alliance and / or licensing arrangement) with a foreign vendor or US vendor's foreign subsidiary / division
- by an independent third party foreign vendor or US vendor's foreign subsidiary / division

2.2) Offshored Service characteristics (scale of 1 to 5, 1 –being the highest)

- A) Strategic importance of the *Offshored Service* to your firm (1- Very Important... 5- Not at all important)_____
- B) Level of interaction required (to produce / perform the *Offshored Service*) between your firm's US office and the firm producing/performing *Offshored Service* (1- Very high5 - Not at all) _____
- C) Level of customization required (by the consumer) in producing/performing the *Offshored Service* (1- High customization5 - standard (no customization))_____
- D) Level of interaction required between the consumer (your firm or your firm's customers and the firm producing/performing *Offshored Service* (1- Very high5 - Not at all) _____
- E) Importance of the quality of the *Offshored Service* to your firm or your firm's customers (1- Very Important... 5- Not at all important)_____
- F) Complexity of technology used in producing/performing the *Offshored Service* (1- Very complex... 5- Not at all complex)_____
- G) Proprietary nature of technology used in producing/performing the *Offshored Service* (1- Very proprietary ... 5- Not at all proprietary (Off the shelf technology))_____
- H) How often do you or your customers use the *Offshored Service* (1 – Daily, 2 – Weekly, 3 – Monthly, 4- Yearly, 5 – Rarely)

Page 4

Reasons / Motives for Offshoring - Please answer the following questions as they relate to the Offshored Service you selected, as a response to an earlier question. Overseas location where services are being produced / performed is referred to as Host Country.

3.1) Please rate the reasons / motives for offshoring (1- Very important..... 5- Not at all important)

___ Cost reduction

___ Reduce time to market (Decrease time required to produce / perform a service activity by simultaneously producing / performing the service at both the US and foreign location)

___ Access *Host Country's* skilled labor / complimentary skills

___ Access new markets

___ Pursue projects, which would not have been cost effective in the US

___ Provide 24 x 7 support

___ Incentives from *Host Country*

Offshoring Concerns - Please answer the following questions as they relate to the Offshored Service you selected, as a response to an earlier question.

**4.1) Please rate the reasons for being cautious about offshoring (1- Very concerned
5- Not at all concerned)**

___ Security / Privacy of data

___ Host Country laws regarding intellectual property protection

___ Uncertainty (over quality, on time delivery and volume) of production of Offshored Services in Host Country

___ Uncertainty (over political stability, macro economic environment) in Host Country

___ Cultural distance (differences in language, work ethic, social structure, ideology and so on between the home country (in this case US) and Host Country

___ Start up cost (fixed investment required to start an operation to produce / perform Offshored service) in Host Country

___ Transaction cost (cost associated with discovering prices, undertaking negotiations, drawing up contracts, settling disputes, and so on...)

___ Loss of in-house capabilities

___ Loss of managerial control

___ Lack of managerial resources in US to manage Offshoring operations

___ Lack of reliable partners / vendors in Host Country

Further Research

The utility of this study to managers and academicians would be greatly enhanced, if you were to give us insight into your offshoring experiences. We would really appreciate if you could allow us to contact you.

The information we receive from you will be kept completely confidential and only aggregated responses will be used for academic research.

Would you be willing to provide us more information about your offshoring experience?

Yes

No

(If Yes continue, If No go to Page 8)

Page 7

Contact Information

Thank you for agreeing to provide us more information about your offshoring experience. Please fill out the following section.

Company Name: _____

Contact Person: _____

Title: _____

Email address: _____

Telephone Number: (_____) - _____ ext _____

Final Question - Please answer the following question as it relates to your entire company or division and not just the Offshored Service.

Please provide approximate percentages for your entire company or division's overall value-added service activities produced / performed domestically (within US) (by either your firm or your firm's domestic partner or a domestic third party vendor) and at a foreign location (either by your firm's subsidiary / division or your firm's partner / vendor).

NOTE: Approximate educated guesses will do. The six boxes below should add up to 100 %

- A) Domestic In-House - Percentage of service activities produced / performed entirely In-House within US _____
- B) Domestic Partner - Percentage of service activities produced / performed within US, by a US firm with whom your firm has a cooperative or strategic relationship ____
- C) Domestic Vendor - Percentage of service activities produced / performed within US, by US providers with whom your firm only has a distant contractual relationship ____
- D) Foreign In-House - Percentage of service activities produced / performed outside US, but entirely In-House (In Fully-Owned Foreign Subsidiaries / Divisions) ____
- E) Foreign Partner / partnership with US vendor's foreign subsidiary / division - Percentage of service activities produced / performed outside US, by your firm's partners with whom your firm has a cooperative or strategic relationship ____
- F) Foreign Vendor / US vendor's foreign subsidiary / division - Percentage of service activities produced / performed outside US, by providers with whom your firm has only a distant contractual relationship ____

Page 9

Thank you for completing this survey.

We appreciate you taking time out of your busy schedule to complete this survey.

Please [click here](#) if you would like to receive an executive summary of this study. A link to an executive summary will be emailed to you after completion of this study.

Offshoring Research Project
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APPENDIX B

RESPONDENT PROFILE

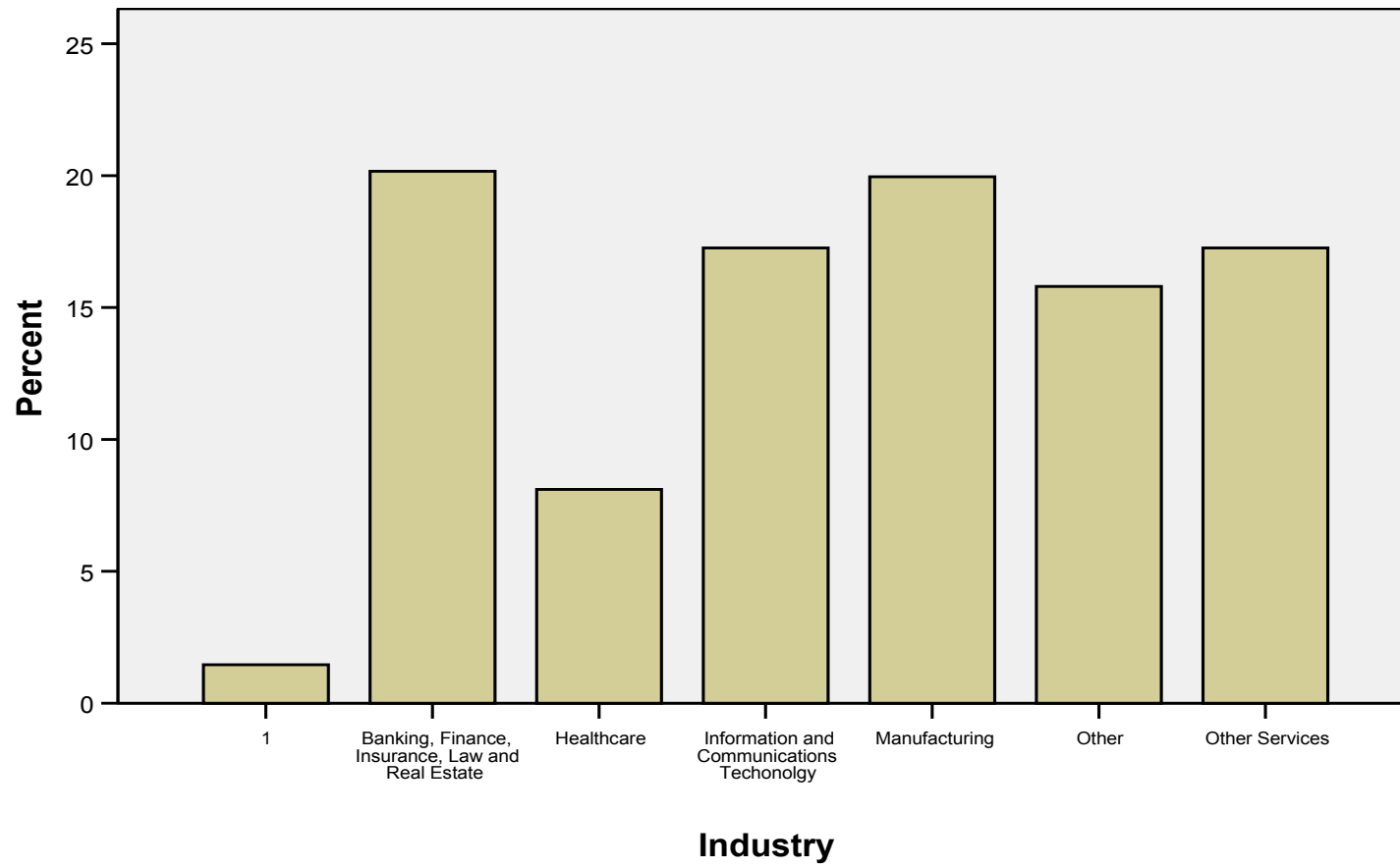
In this section, frequency tables and bar charts are presented for key demographic variables: industry, firm size (employees) and offshored service. Also frequency tables and bar charts for cross tabulation of the same variables with offshoring mode are presented.

1) Industry

Industry

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7	1.5	1.5	1.5
Banking, Finance, Insurance, Law and Real Estate	97	20.2	20.2	21.6
Healthcare	39	8.1	8.1	29.7
Information and Communications Technology	83	17.3	17.3	47.0
Manufacturing	96	20.0	20.0	66.9
Other	76	15.8	15.8	82.7
Other Services	83	17.3	17.3	100.0
Total	481	100.0	100.0	

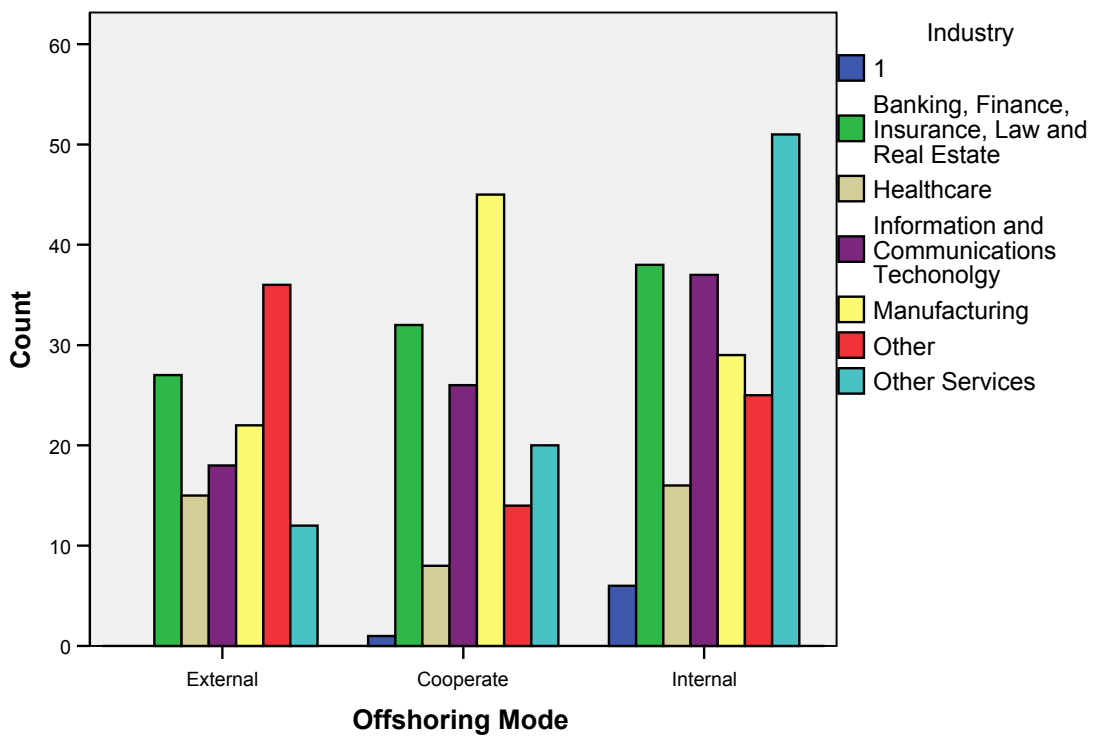
Industry



Offshoring Mode * Industry Crosstabulation

			Industry							Total
			Banking, Finance, Insurance, Law and Real Estate	Healthcare	Information and Communicati ons Technology	Manufactu ring	Other	Other Services		
Offshoring Mode	External	Count	0	27	15	18	22	36	12	130
		% within Offshoring Mode	.0%	20.8%	11.5%	13.8%	16.9%	27.7%	9.2%	100.0%
		% within Industry	.0%	27.8%	38.5%	22.2%	22.9%	48.0%	14.5%	27.2%
		% of Total	.0%	5.6%	3.1%	3.8%	4.6%	7.5%	2.5%	27.2%
	Cooperate	Count	1	32	8	26	45	14	20	146
		% within Offshoring Mode	.7%	21.9%	5.5%	17.8%	30.8%	9.6%	13.7%	100.0%
		% within Industry	14.3%	33.0%	20.5%	32.1%	46.9%	18.7%	24.1%	30.5%
		% of Total	.2%	6.7%	1.7%	5.4%	9.4%	2.9%	4.2%	30.5%
	Internal	Count	6	38	16	37	29	25	51	202
		% within Offshoring Mode	3.0%	18.8%	7.9%	18.3%	14.4%	12.4%	25.2%	100.0%
		% within Industry	85.7%	39.2%	41.0%	45.7%	30.2%	33.3%	61.4%	42.3%
		% of Total	1.3%	7.9%	3.3%	7.7%	6.1%	5.2%	10.7%	42.3%
Total	Count	7	97	39	81	96	75	83	478	
	% within Offshoring Mode	1.5%	20.3%	8.2%	16.9%	20.1%	15.7%	17.4%	100.0%	
	% within Industry	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	1.5%	20.3%	8.2%	16.9%	20.1%	15.7%	17.4%	100.0%	

Bar Chart

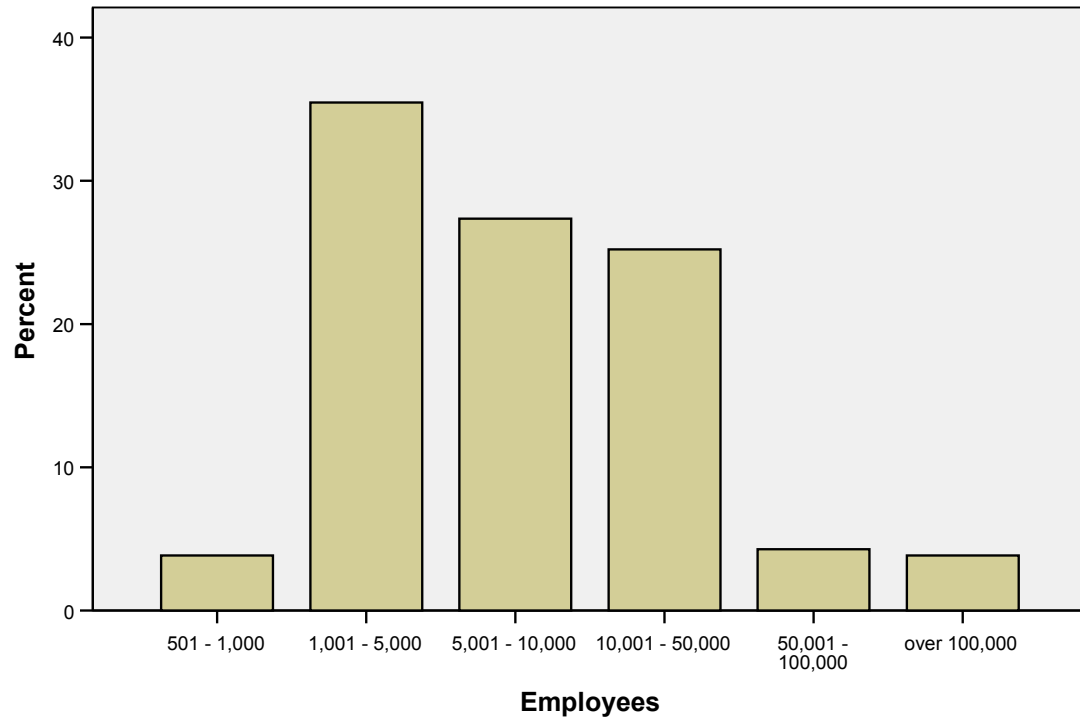


2) Firm Size (Employees)

Employees

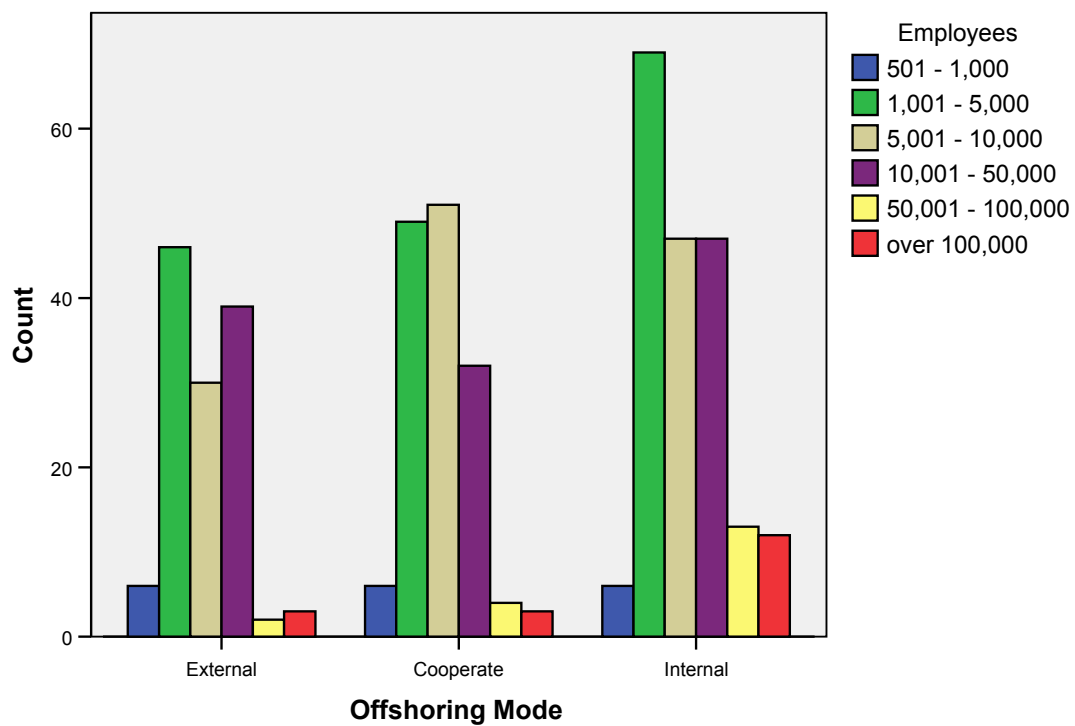
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	501 - 1,000	18	3.7	3.8	3.8
	1,001 - 5,000	166	34.5	35.5	39.3
	5,001 - 10,000	128	26.6	27.4	66.7
	10,001 - 50,000	118	24.5	25.2	91.9
	50,001 - 100,000	20	4.2	4.3	96.2
	over 100,000	18	3.7	3.8	100.0
	Total	468	97.3	100.0	
Missing	System	13	2.7		
Total		481	100.0		

Employees



Offshoring Mode * Employees

			Employees						Total
			501 - 1,000	1,001 - 5,000	5,001 - 10,000	10,001 - 50,000	50,001 - 100,000	over 100,000	
Offshoring Mode	External	Count	6	46	30	39	2	3	126
		% within Offshoring Mode	4.8%	36.5%	23.8%	31.0%	1.6%	2.4%	100.0%
		% within Employees	33.3%	28.0%	23.4%	33.1%	10.5%	16.7%	27.1%
		% of Total	1.3%	9.9%	6.5%	8.4%	.4%	.6%	27.1%
	Cooperate	Count	6	49	51	32	4	3	145
		% within Offshoring Mode	4.1%	33.8%	35.2%	22.1%	2.8%	2.1%	100.0%
		% within Employees	33.3%	29.9%	39.8%	27.1%	21.1%	16.7%	31.2%
		% of Total	1.3%	10.5%	11.0%	6.9%	.9%	.6%	31.2%
	Internal	Count	6	69	47	47	13	12	194
		% within Offshoring Mode	3.1%	35.6%	24.2%	24.2%	6.7%	6.2%	100.0%
		% within Employees	33.3%	42.1%	36.7%	39.8%	68.4%	66.7%	41.7%
		% of Total	1.3%	14.8%	10.1%	10.1%	2.8%	2.6%	41.7%
Total	Count	18	164	128	118	19	18	465	
	% within Offshoring Mode	3.9%	35.3%	27.5%	25.4%	4.1%	3.9%	100.0%	
	% within Employees	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	3.9%	35.3%	27.5%	25.4%	4.1%	3.9%	100.0%	

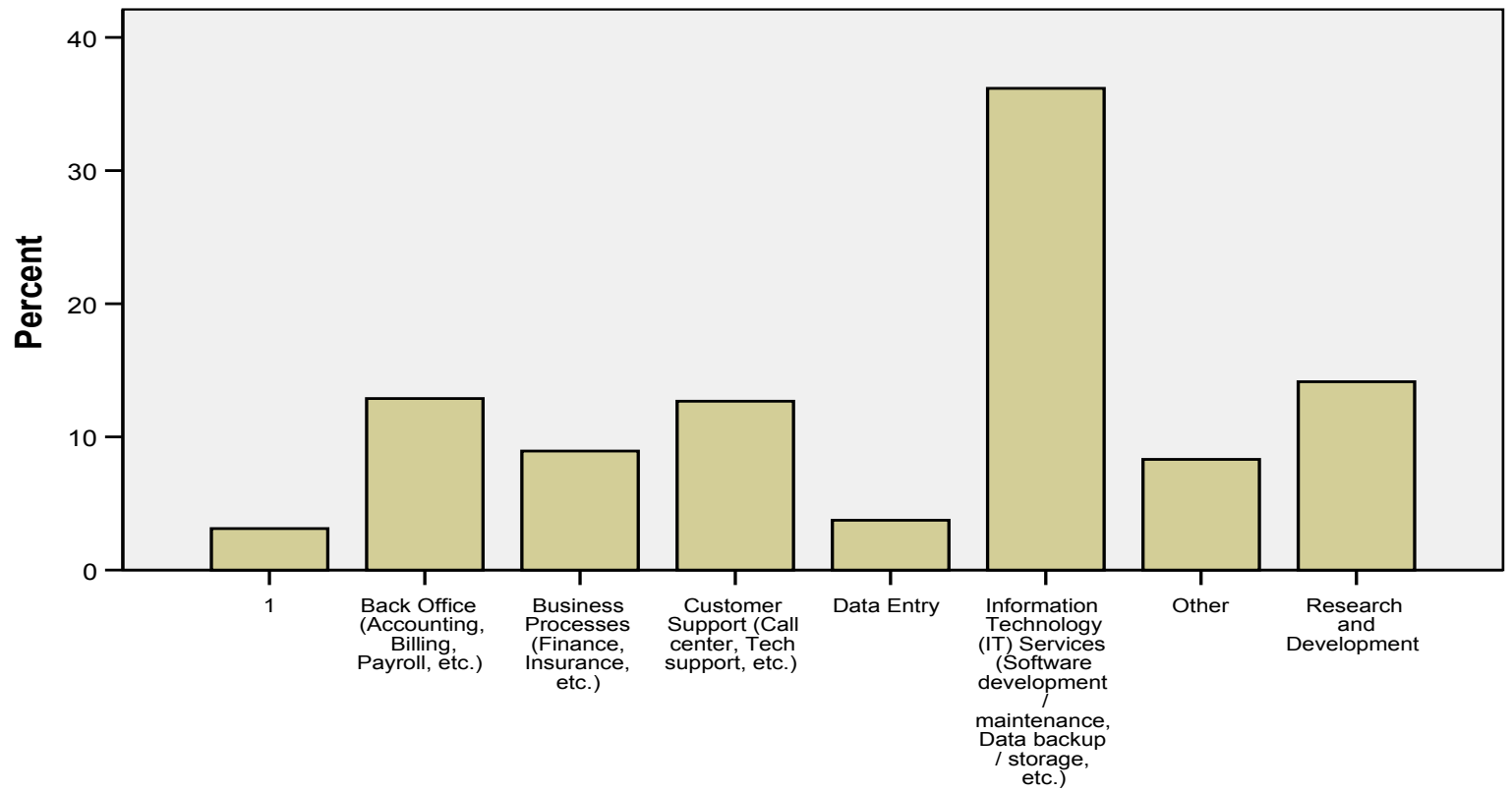
Offshoring Mode * Employees

3) Offshored Service

Offshored Service

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15	3.1	3.1	3.1
Back Office (Accounting, Billing, Payroll, etc.)	62	12.9	12.9	16.0
Business Processes (Finance, Insurance, etc.)	43	8.9	8.9	24.9
Customer Support (Call center, Tech support, etc.)	61	12.7	12.7	37.6
Data Entry	18	3.7	3.7	41.4
Information Technology (IT) Services (Software development / maintenance, Data backup / storage, etc.)	174	36.2	36.2	77.5
Other	40	8.3	8.3	85.9
Research and Development	68	14.1	14.1	100.0
Total	481	100.0	100.0	

Offshored Service

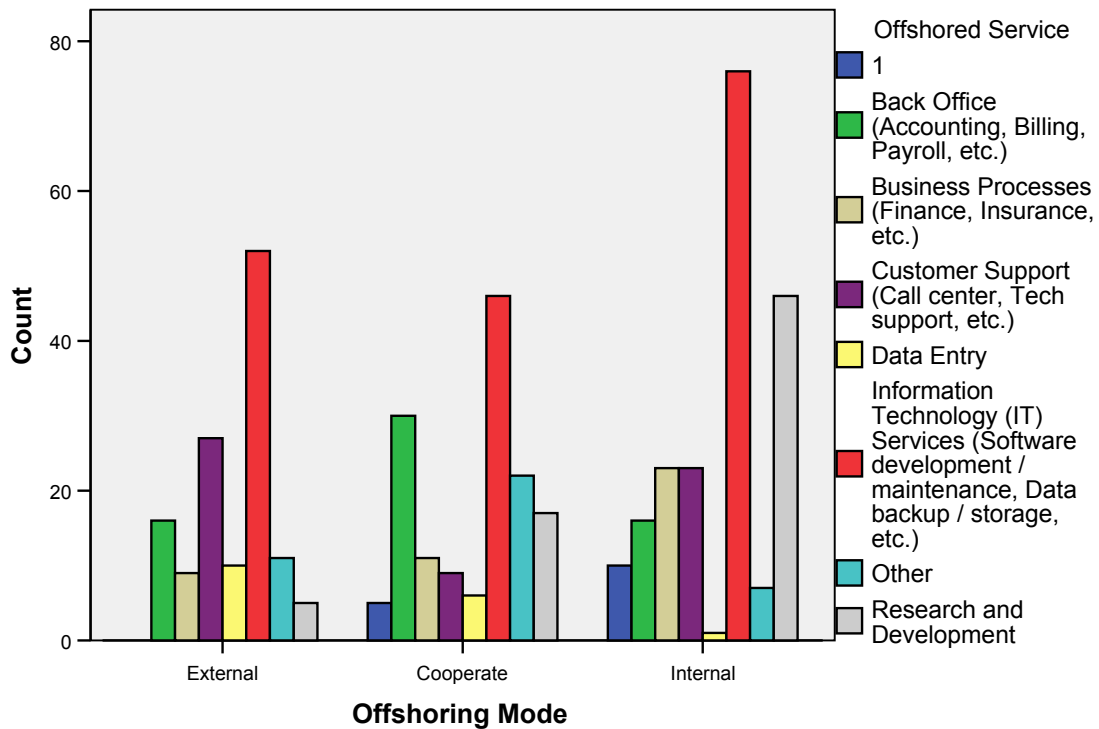


Offshored Service

Offshoring Mode * Offshored Service Crosstabulation

			Offshored Service								Total
				Back Office (Accounting, Billing, Payroll, etc.)	Business Processes (Finance, Insurance, etc.)	Customer Support (Call center, Tech support, etc.)	Data Entry	Information Technology (IT) Services (Software development / maintenance, Data backup / storage, etc.)	Other	Research and Development	
Offshoring Mode	External	Count	0	16	9	27	10	52	11	5	130
		% within Offshoring Mode	.0%	12.3%	6.9%	20.8%	7.7%	40.0%	8.5%	3.8%	100.0%
		% within Offshored Service	.0%	25.8%	20.9%	45.8%	58.8%	29.9%	27.5%	7.4%	27.2%
		% of Total	.0%	3.3%	1.9%	5.6%	2.1%	10.9%	2.3%	1.0%	27.2%
	Cooperate	Count	5	30	11	9	6	46	22	17	146
		% within Offshoring Mode	3.4%	20.5%	7.5%	6.2%	4.1%	31.5%	15.1%	11.6%	100.0%
		% within Offshored Service	33.3%	48.4%	25.6%	15.3%	35.3%	26.4%	55.0%	25.0%	30.5%
		% of Total	1.0%	6.3%	2.3%	1.9%	1.3%	9.6%	4.6%	3.6%	30.5%
	Internal	Count	10	16	23	23	1	76	7	46	202
		% within Offshoring Mode	5.0%	7.9%	11.4%	11.4%	.5%	37.6%	3.5%	22.8%	100.0%
		% within Offshored Service	66.7%	25.8%	53.5%	39.0%	5.9%	43.7%	17.5%	67.6%	42.3%
		% of Total	2.1%	3.3%	4.8%	4.8%	.2%	15.9%	1.5%	9.6%	42.3%
Total	Count	15	62	43	59	17	174	40	68	478	
	% within Offshoring Mode	3.1%	13.0%	9.0%	12.3%	3.6%	36.4%	8.4%	14.2%	100.0%	
	% within Offshored Service	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	3.1%	13.0%	9.0%	12.3%	3.6%	36.4%	8.4%	14.2%	100.0%	

Bar Chart



VITA**ANAND (ANDY) PORE**

1971 Born in Pune, India

EDUCATION

1992 B S in Computer Science and Engineering, Government College of Engineering, Aurangabad, India
1995 Diploma in Business Management, Mumbai, India
2009 PhD in International Business, Rutgers University, NJ

ACADEMIC / TEACHING EXPERIENCE

1993 – 1995 Vishwakarma Institute of Technology, Pune, India – Lecturer
2006 - 2008 Rutgers Business School, NJ – Part time Lecturer
Fall 2008 – present Emporia State University, KS – Assistant Professor

PROFESSIONAL EXPERIENCE

1989-2003 Over 14 years of experience (ranging from Network Engineer to Vice President) in the Information Technology field. Worked for various companies such as Delta Consultancy Services, Chase Manhattan, Johnson & Johnson, The Prudential, AT&T, M & M Mars, Tata Unisys(India) and Microscan(India).